IRON AGE

SEMI-ANNUAL INDEX

January — June 1981

Volume 224

SUBJECT A

A & A TOOL CO.
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

ADS MACHINERY CORP.
New Mill Starts to Roll for Eastern Stainless, by R.R. Irving, March 2 p MP-21

ASC CORP.
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

ASEA INC.
Welding and Robotics, March 23 p A-1

AVC CORP.
Shareholders to Decide Raybestos AVC Deal, Jan 26 p 18

ROBERT A. ABBOTT
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

JOSEPH K. ABRAHAM
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

ABRASIVES
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140
Grinding Disc: New Kid on the Block is a Very Tough Customer! Feb 23 p 82

ACCO INDUSTRIES, INC.
Material Handling Goes for Automation, Apr 27 p 12
Materials Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

ACCOUNTING
Inflation Accouting Takes Its Toll, But is a Valuable Tool, by Roger Lopata, May 25 p 55

QUENTIN G. ACHUFF
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

ACME-CLEVELAND CORP.
Acme-Cleveland Chief Notes Orders Decline, Says Backlogs are Strong, Feb 11 p 17
Don't Delay Capital Spending, NMBTA Urges, June 1 p 12
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Trading Legislation Sent to the House, May 4 p 21
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

RICHARD E. ACOSTA
It's Back to School for Workers at GM, by G.A. Weimer, June 22 p 83

ADAGE, INC.
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb. 23 p 63
Computers and Manufacturing, June 22 p A-1

DEANE ADAMS
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

ROBIN G. ADAMS
Low Aluminum Demand Worries Producers, June 1 p 57

ADAMS GROUP, INC.
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

JOSEPH ADDABBO
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

ADHESIVE BONDING
A Tale of Adhesively-Bonded Aircraft, by R.R. Irving, May 4 p 87

ADVANCED ROBOTICS CORP.
Welding is Falling into Robots' Clutches, Apr 27 p 11

AEROSPACE
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77
As the Space Shuttle Touched Down, Rockwell's Hopes Soared, May 4 p 12
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
Defense Billions How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Hercules Sees Strong Growth in Graphite Use, May 25 p 17
Looking Ahead in '81 The Issues and People of 1981, Jan 5 p 19
The Space Shuttle Rockets Metalworking into the Future, by G.A. Weimer, March 11 p 22

AEROSPATIALE SPACE AND BALLISTICS SYSTEMS DIV.
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65

AIDA ENGINEERING INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

AIR POLLUTION
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
...But the Clean Air Act Won't Get a Major Overhaul, March 23 p 15
Clean Air Stretch-Out Awaits Move by House, Apr 27 p 11
EPA Eases Air Rules for Can Manufacturers, Jan 14 p 19
EPA Eases Steel Industry's Air Pollution Deadlines..., March 23 p 15
EPA Regulations Eased for U.S. Steel, Feb 2 p MP-5
Foundrymen Draw a Bead on Legislative Targets; EPA, OSHA in the Bull's-Eye, March 2 p 15
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49
Ormet Installs New Bag Filter System, Mar 2 p MP-5
Steel Gets Three-Year Breather on Clean Air, by E.W. Bowers, June 10 p 21
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34
Welding and Robotics, March 23 p A-1

AIRCRAFT
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Aircraft Will Help Machine Tool Sales, May 13 p 15
American Airlines Picks Boeing's 757, March 2 p 20
Construction Equipment Takes to Air, March 2 p 81
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
First Quarter Report-Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Rockwell Positioned for Defense Buildup, March 2 p 16
A Tale of Adhesively-Bonded Aircraft, by R.R. Irving, May 4 p 87
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

AJAX MAGNETHERMIC CORP.
Ajax Magnethemic Wins Furnace Contract, Jan 5 p MP-3
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

JAMES ALARIO
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51

DAVID ALBERT
Computers and Manufacturing, June 22 p A-1

ALCAN ALUMINUM CORP.
Development Snags Hit Australian Minerals, June 22 p 115
Service Centers Remain Skeptical of 1981, Jan 14 p 64

ALCAN ALUMINUM LTD.
Aluminum Eases Off on Capacity Buildup, Apr 15 p 95
Aluminum Rallies for Another Big Year, Jan 14 p 58
Development Snags Hit Australian Minerals, June 22 p 115
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113

E. C. ALCANTRA
Service Centers in the Eighties, May 13 p A-1

ALCO STANDARD CO.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

DAVID ALEXANDER
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29

ELMORE R. ALEXANDER
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65

ALGOMA STEEL CORP., LTD.
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23

JOSEPH F. ALIBRANDI
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

ALLEGHENY INTERNATIONAL CORP.
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23

ALLEGHENY LUDLUM INDUSTRIES, INC.
Local Group Intercepts A-L Pass to Murchison, Jan 14 p 16
Tippins In Murchison Out at Allegheny Ludlum, by G.J. McManus, March 2 p MP-24

ALLEGHENY LUDLUM STEEL CO.
Tippins In Murchison Out at Allegheny Ludlum, by G.J. McManus, March 2 p MP-24

ALLEN-BRADLEY CO.
Allen-Bradley's New CNC Seeks World Market, June 22 p 22
Computers and Manufacturing, June 22 p A-1
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
System Alpha Packs Dual Control Punch, by A.M. Greene, Feb 11 p 64

ALLIANCE OF THE METALWORKING INDUSTRIES
NTMA Chief Sees Slow Pace for 1981, Apr 6 p 15

ALLIS-CHALMERS CORP.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

ALL JAPAN FEDERATION OF ALUMINUM WORKERS
U.S. Aluminum Exports to Japan Tripled, May 4 p 19

THOMAS ALLEN
Service Center Orders are Perking Up, May 4 p 115

ALLIS-CHALMERS CORP.
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

ALLOYS
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77
Alloys Pass Corrosion Tests, March 2 p 81
Annual Statistical Review Metal Prices and Production as of December 31, 1980, Jan 5 p 103
Cabot Wagers $13 Million on Aluminum's Alloy Needs, by R.J. Regan, June 1 p MP-17
Mechanical Alloying: It Works, June 10 p 84
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

ALRO STEEL CORP.
Service Centers Remain Cautious about Stocks, Apr 15 p 98

TAYLAN ALTAN
Battelle Labs Studying Close Tolerance Forging, March 2 p 17

ALUMAX INC.
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113

ALUMINA
Ormet Installs New Bag Filter System, Mar 2 p MP-5

ALUMINUM
Aluminum Distributors Keep Inventories, March 2 p 95
Aluminum Eases Off on Capacity Buildup, Apr 15 p 95
Aluminum Exports Rose 300 Pct in '80, March 2 p 103
Aluminum Foil Gets Fine Tuning, Apr 6 p MP-4
Aluminum Output Cut in Japan and Europe, Apr 27 p 82
Aluminum Output Hit Record in January, March 11 p 69
Aluminum Output Strong, But Deliveries Slip, Jan 26 p 76
Aluminum Rallies for Another Big Year, Jan 14 p 58
Anaconda Aluminum Boosts Rolling Capacity, by R.J. Regan, March 2 p MP-28
Cabot Wagers $13 Million on Aluminum's Alloy Needs, by R.J. Regan, June 1 p MP-17
Detroit Makes Room for More Aluminum, March 11 p 66
Export Was Big Factor in '80 for Aluminum, Feb 2 p 64
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
GE Receives Order for Aluminum Complex, Apr 6 p MP-4
Kaiser's Price Hikes Startle Industry, May 13 p 149
Low Aluminum Demand Worries Producers, June 1 p 57
Nonferrous Producers Ask for R & D for Energy and Emission Answers, by R.J. Regan, Feb 2 p 49
Pacific Aluminum Gets Power At High Price, Jan 26 p 77
Reynolds Metals Expand Reclamation Plant, June 1 p MP-1
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113
Soft Aluminum Market Brings on Discounting, March 23 p 149
Transport May be Big Aluminum Market, Apr 6 p 96
U.S. Aluminum Exports to Japan Tripled, May 4 p 19
World Aluminum Market Gets Tougher, Feb 11 p 71
World Aluminum Output at Strong Level, June 10 p 101
Aluminum Output Cut in Japan and Europe, Apr 27 p 82

ALUMINUM ASSN.
Aluminum Output Hit Record in January, March 11 p 69
Detroit Makes Room for More Aluminum, March 11 p 66
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113
U.S. Aluminum Exports to Japan Tripled, May 4 p 19

ALUMINUM CASTING CO.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

ALUMINUM CO. OF AMERICA
Aluminum Output Hit Record in January, March 11 p 69
Aluminum Rallies for Another Big Year, Jan 14 p 58
Low Aluminum Demand Worries Producers, June 1 p 57
Profit '80: Steel Down, Nonferrous Hurt by G.J. McManus and R.J. Regan, March 2 p 38
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113
Soft Aluminum Market Brings on Discounting, March 23 p 149
Transport May be Big Aluminum Market, Apr 6 p 96

ALUMINUM FORGE CO.
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33

ALUMINUM INDUSTRY
Aluminum Distributors Keep Inventories, March 2 p 95
Aluminum Output Cut in Japan and Europe, Apr 27 p 82
Aluminum Output Strong, But Deliveries Slip, Jan 26 p 76
Aluminum Rallies for Another Big Year, Jan 14 p 58
Export Was Big Factor in '80 for Aluminum, Feb 2 p 64
Low Aluminum Demand Worries Producers, June 1 p 57
Soft Aluminum Market Brings on Discounting, March 23 p 149

AMAX INC.
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, by R.J. Regan, May 4 p 63
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E. W. Bowers, May 13 p 23
Nonferrous Producers Talk about Oil's Lure, May 25 p 91
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46

AMAX NICKEL CO.
Nickel's Supply Demand Roller Coaster Gets Costlier, by Roger Lopata, March 11 p 30

AMERICAN AIRLINES, INC.
American Airlines Picks Boeing's 757, March 2 p 20

AMERICAN ASSN. FOR THE ADVANCEMENT OF SCIENCE
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

AMERICAN ASSN. OF EQUIPMENT LESSORS
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

AMERICAN BUREAU OF METAL STATISTICS
Copper Producers Cut Output to Match Sales, May 4 p 113
Copper Strike Helped Importers to U.S., March 2 p 95
Copper Supply Demand Stay Well Balanced, June 10 p 101

AMERICAN CAN CO.
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43
Steelworkers, Can Companies Sign New Pact, March 2 p 20
Will Powder Rolling Take On Sheet Steel? by R.R. Irving, June 1 p MP-15

AMERICAN CAST IRON PIPE CO.
NC: A Big Turn for the Better, March 2 p 90

AMERICAN DIE CASTING INSTITUTE
Diecasters Join Debate on Strategic Materials, June 1 p 15

AMERICAN ENTERPRISE INSTITUTE
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34

AMERICAN HOT DIP GALVANIZERS ASSN.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

AMERICAN IRON AND STEEL INSTITUTE
AISI's DeLancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47
. . . But the Clean Air Act Won't Get a Major Overhaul, March 23 p 15
EPA Eases Steel Industry's Air Pollution Deadlines. . . . March 23 p 15
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
Output Winds Down, March 11 p 35
Scrap Export Controls Silly, Says ISIS Head, May 4 p 114
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Senses a New Era Dawning, June 10 p 13
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Steel Took Bruising Fall in 1980, March 11 p 65
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34
Trigger Prices are Still Alive, Says Baldrige; Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
Who Says We'll Blow the Money? by Gene Beaudet, June 22 p 7
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

AMERICAN MAGNESIUM CORP.
Can Magnesium Dent the Auto Industry, by R.J. Regan, June 1 p 32

AMERICAN MINING CONGRESS
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24

AMERICAN MOTORS CORP.
Automakers Pare Output Schedules, Mar 23 p 17
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus, and R.E. Harvey, Jan 26 p 63
Reagan Will Rely on Deregulations and Japanese Restraint to Ease Auto Problems, Apr 6 p 13

AMERICAN PATENT LAW ASSN.
America Needs a Couple of Thomas Alva Edisons, by S.T. Parker, June 1 p 24

AMERICAN PRODUCTION AND INVENTORY CONTROL SOCIETY
Computers and Manufacturing, June 22 p A-1
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

AMERICAN PRODUCTIVITY CENTER
Equipment is Better, But its Productivity Falls How Come? by J.D. Baxter, June 22 p 33

AMERICAN RAILWAY ENGINEERING ASSN.
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95

AMERICAN SHEAR KNIFE DIV.
Service Centers Some Suppliers Think Upturn is Underway, Jan 26 p 78

AMERICAN SOCIETY FOR ENERGY MANAGEMENT
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

AMERICAN SOCIETY FOR QUALITY CONTROL
Product Liability: How to Prevent It, Feb 2 p 23
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

AMERICAN SOCIETY OF CIVIL ENGINEERS
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

AMERICAN SOFTWARE, INC.
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

AMERICAN STEEL SUPPLIERS
Steel Distributors Doing Better than Expected, March 11 p 71

AMERICAN STOCK EXCHANGE
Message for President from Mid-Range CEOs, Jan 26 p 26

AMERICAN TOOL CO.
Cavalcade of News Metalworking's Stories of 1980, Jan 5 p 119
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

AMERICAN WELDING SOCIETY
Sandvik Scales Up Its Welding Output, June 1 p 17
Welding and Robotics, March 23 p A-1
Welding is Falling into Robots' Clutches, Apr 27 p 11

B. CHARLES AMES
Acme-Cleveland Chief Notes Orders Decline, Says Backlogs are Strong, Feb 11 p 17
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

ANACONDA ALUMINUM CO.
Anaconda Aluminum Boosts Rolling Capacity, by R.J. Regan, March 2 p MP-28
GE Receives Order for Aluminum Complex, Apr 6 p MP-4
World Aluminum Market Gets Tougher, Feb 11 p 71

ANALYTICAL CHEMICAL LABORATORIES
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

ARTHUR ANDERSEN & CO.
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38

D. M. ANDERSON
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

GORDON ANDERSON
Copper Distributors Mildly Optimistic, March 23 p 153
Service Center Meeting Draws Large Crowd, June 1 p 60

ROBERT ANDERSON
Rockwell Positioned for Defense Buildup, March 2 p 16
The Space Shuttle Rockets Metalworking into the Future, by G.A. Weimer, March 11 p 22

WILLIAM S. ANDERSON
U.S. Data Processing Leadership Threatened, Apr 15 p 15

JOHN ANDREWS
Teledyne Allvac Plans $80 Million Expansion, June 22 p 115

EDWARD A. ANDRIOLA
Welding and Robotics, March 23 p A-1

RAYMOND C. ANGELL
Service Centers in the Eighties, May 13 p A-1

HENRY ANGSTEN
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

ANNEALING
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77

ANTITRUST LAWS
Court Gives Backing to Antitrust Laws, June 10 p 15

APPLIANCES
DOE Appliance Rules are on the Back Burner, March 23 p 16
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

APPLICON INC.
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1

RAND V. ARASKOG
Management in America Reshaping the Vision Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59

ARC WELDING
Welding and Robotics, March 23 p A-1
Welding is Falling into Robots' Clutches, Apr 27 p 11

ARMCO FINANCIAL CORP.
Leasing Firms Become a New Source of Cash, by G.J. McMarlus, June 22 p 38

ARMCO INC.
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28
Has Metalworking Overlooked the Virtures of Titanium, by C.T. Post, Feb 11 p 58
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38
More Capacity for Tubular Products Comes on Stream, March 23 p 33
New Galvanized Product Assumes Dual Roles, by J.J. Obrzut, Apr 6 p 71
Oil Drilling to Continue at Hectic Pace in '81, Jan 14 p 15
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
Service Centers in the Eighties, May 13 p A-1
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

ARMCO INDUSTRIAL CREDIT CORP.
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

RICHARD A. ARMSTRONG
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

D. S. ARNOT
Service Center Meeting Draws Large Crowd, June 1 p 60
Steel Senses a New Era Dawning, June 10 p 13

ARROW ELECTRONIC CORP.
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28

ASEA AB
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

ASARCO INC.
Asarco Settles Strike, Boosts Zinc Production, March 2 p 97
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Copper Output Cut in Line with Demand, March 11 p 65
Copper Price, Demand Poised to Go Up, Feb 23 p 89
Copper Prices See-Saw During this Quarter, May 13 p 150
Could the Synfuels Act Expand Mineral Output, May 4 p 21
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46

REUBIN ASKEW
U.S., Japan to Free Government Purchasing, Jan 14 p 15

ASSOCIATED INDUSTRIES OF MASSACHUSETTS
It's Back to College for CEO's This Time to Teach, by J.D. Baxter, March 23 p 44

ASSN. OF HOME APPLIANCE MANUFACTURERS
DOE Appliance Rules are on the Back Burner, March 23 p 16
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

ASSN. OF STEEL DISTRIBUTORS
Steel Distributors Doing Better than Expected, March 11 p 71

ROBERT W. ATKINSON
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33

ATLANTIC STEEL CO.
Atlantic Puts Money in Continuous Casting, by G.J. McManus, March 2 p MP-26

ATLANTIC STEEL CO.
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
Service Centers in the Eighties, May 13 p A-1

ATLAS STEEL PRODUCTS CO.
Service Centers Remain Cautious about Stocks, Apr 15 p 98

JAMES ATOLS
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

ATOLS MOLD & TOOL CO.
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

THORNE AUCHTER
New OSHA Chief Got 48 OSHA Citations, March 2 p 16

AUSTENITE
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93

NANCY K. AUSTIN
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117

AUSTIN METAL FINISHING CO.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

AUSTRALIA
Development Snags Hit Australian Minerals, June 22 p 115

AUSTRALIAN IRON AND STEEL PTY. LTD.
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

AUTOMATION
CAD CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
General Numeric Hopes to Double Control Sales, Apr 27 p 15
Is Industry Failing to Use Robots Enough? June 10 p 23
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38
Material Handling Goes for Automation, Apr 27 p 12
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

AUTOMATIX, INC.
Welding is Falling into Robots' Clutches, Apr 27 p 11

AUTOMOBILES
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Auto Market as Soft and Sluggish as Bayou, Feb 2 p 16
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Automakers Pare Output Schedules, March 23 p 17
CAD CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
Can Magnesium Dent the Auto Industry? by R.J. Regan, June 1 p 32
Can U.S. Automakers Dig Up $12 Billion to Fund Their Modernization Programs? May 13 p 8
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Chrysler's on the Road Back, Bergmoser Says, March 11 p 17
Chrysler's Road to Recovery Gets Rockier, Jan 14 p 13
December Blew Cold for Auto Makers, Jan 26 p 18
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus, and R.E. Harvey, Jan 26 p 63
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9
GM Managers Optimistic that Auto Buyers Will Return to the Market This Year, Feb 23 p 23
GM Wonders: Gas? Diesel? Electric? Coal Powder? June 22 p 18
Japanese Autos Could Face Trade Restraints, March 11 p 15
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Steel Summary: Auto Firms Buy More Sheet, Apr 27 p 82
Steel Summary: Hope Keeps Growing Stronger, May 4 p 113
UAW Says Chrysler Was Unique Case, June 1 p 12
U.S. Automakers Write '80 Reports in Red, March 11 p 18
The Worst is Over, Claims Chrysler's Iacocca, June 22 p 17
Auto Market as Soft and Sluggish as Bayou, Feb 2 p 16
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Automakers Pare Output Schedules, March 23 p 17

AUTOMOTIVE INDUSTRY
Can Magnesium Dent the Auto Industry? by R.J. Regan, June 1 p 32
Can U.S. Automakers Dig Up $12 Billion to Fund Their Modernization Programs? May 13 p 8
Cavalcade of News Metalworking's Stories of 1980, Jan 5 p 119
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Detroit Makes Room for More Aluminum, March 11 p 66
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Detroit Will Remain the Biggest Market for American Machine Tool Builders, May 4 p 19
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan. 5 p 55
UAW Says Chrysler Was Unique Case, June 1 p 12
U.S. Automakers Write '80 Reports in Red, March 11 p 18
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47
The Worst is Over, Claims Chrysler's Iacocca, June 22 p 17

AXIMETRIC CO.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

E. W. AYLWARD
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

B

GLENN D. BABBITT
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

BABCOCK & WILCOX CO.
Service Centers in the Eighties, May 13 p A-1
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

WERNER BABEL
Maho Enters U.S. Market with Connecticut-Based Operation, March 11 p 15

BAG FILTER SYSTEMS
Ormet Installs New Bag Filter System, Mar 2 p MP-5

DONALD BAHL
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

T. E. BAILEY, JR.
CAD CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63

CHARLES F. BAIRD
Nickel's Supply-Demand Roller Coaster Gets Costlier, by Roger Lopata, March 11 p 30
Nickel Worries About Early Double-Dip, Jan 14 p 58

E. C. BAKENHUS
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus, and R.E. Harvey, Jan 26 p 63

JAMES BAKER
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

MALCOLM BALDRIGE
Business Displeased with Tax Compromises, June 22 p 15
Can U.S. Automakers Dig Up $12 Billion to Fund Their Modernization Programs? May 13 p 8
Trigger Prices are Still Alive, Says Baldrige: Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
Trigger Prices Will Remain, Baldrige Says, March 23 p 17
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39
White House Backing Export Initiative, Apr 27 p 8

RICHARD S. BALLARD
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

BANCROFT CORP.
Welding and Robotics, March 23 p A-1

CHARLES F. BARBER
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Copper Output Cut in Line with Demand, March 11 p 65
Copper Prices See-Saw During this Quarter, May 13 p 150
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25, p 46

DAVID BARBER
CAD CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1

WALTER C. BARBER
EPA Eases Steel Industry's Air Pollution Deadlines . . . . March 23 p 15

BARCLAY BANK
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

JOHN BARKER
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

MICHAEL BARKER
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

ALVIN BARNETT
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

BARON-BLAKESLEE, INC.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

BARRETT ELECTRONICS CO.
Service Center Orders are Perking Up, May 4 p 115

THOMAS D. BARROW
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Nonferrous Producers Talk about Oil's Lure, May 25 p 91

BARS AND RODS
Commerce to Probe Stainless Imports, Apr 27 p 8
Mechanical Alloying: It Works, June 10 p 84
USS Launches General $10 Steel Price Hike, May 25 p 14

BASIC OXYGEN FURNACES
Steel Survey Shows Pause in Expansion, May 4 p MP-1
Submerged Injections Applied to Openhearths, May 4 p MP-3
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23

W. H. C. BASSETT
Service Centers in the Eighties, May 13 p A-1

BASSETT STEEL & TUBE CO., INC.
Service Centers in the Eighties, May 13 p A-1

C. W. BASTEDO
Atlantic Puts Money in Continuous Casting, by G.J. McManus, March 2 p MP-26

BATTELLE COLUMBUS LABORATORIES
Battelle Labs Studying Close Tolerance Forging, March 2 p 17
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57
R & D Spending Could Hit $68.6 Billion this Year, Jan 26 p 76
Scrap Tramp Element Problem Gets Study, March 2 p MP-6

BATTERIES
Lead Battery Market Hurt by Warm Winter, March 2 p 97
Lead Producers Need More Battery Sales, June 1 p 58

ROBERT J. BAUM
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

R. E. BAUSERMAN
Service Centers Remain Cautious about Stocks, Apr 15 p 98

BAUXITE
Aluminum Output Hit Record in January, March 11 p 69
Scaga Meets Reagan, Congressional Panels, Feb 11 p 73

WILLIAM BAXTER
Now We'll Find Out What We're Made Of, by Gene Beaudet, Feb 23 p 5

BAY AREA RAPID TRANSIT AUTHORITY
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

D. R. BEALL
Rockwell Positioned for Defense Buildup, March 2 p 16

BEARINGS
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

GENE BEAUDET
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47

HOWARD O. BEAVER
Beaver Hands Roedel CEO Slot at Carpenter, March 2 p 92

BECHTEL POWER CORP.
Donovan Favors 'Self-Inspection' of Workplace Hazards, Apr 15 p 13
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

DAN BECK
Copper Distributors Mildly Optimistic, March 23 p 153

GEORGE J. BECKER
Aircraft Will Help Machine Tool Sales, May 13 p 15
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

DONALD BEDELL
U.S. Machine Tool Builders Off-Balance Overseas, by E.W. Bowers, March 11 p 36

BEECH AIRCRAFT CORP.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

RICHARD BEECHER
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96

G. H. BEHNKE
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

LESLIE BEICH
Credit Managers Find More Interest In Their Work, by S. T. Parker, March 11 p 42

RICHARD BELFORD
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

BELDEN CORP.
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89

BELL AIRCRAFT DIV.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79

BELL TELEPHONE LABORATORIES
Raising the Profile of Factory Safety, March 2 p 81

ROBERT BENDERS
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63

BENDING
If You Can't Buy Them, Build Them, Says Fabricator, by Roger Lopata, June 10 p 83

BENDIX CORP.
Cavalcade of News Metalworking's Stories of 1980, Jan 5 p 119
Computers and Manufacturing, June 22 p A-1
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
W & S Grinding Has Its Nose to the Grindstone, Apr 27 p 15
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

ADAM BENJAMIN
Steel Execs Seek Better Enforcement of TPM, Feb 23 p 25

JOHN S. BENJAMIN
Mechanical Alloying: It Works, June 10 p 84

JAMES F. BERE
Wooing Shareholders is Full-Time Job, June 10 p 39

NORBERT R. BERG
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

J. PAUL BERGMOSER
Chrysler's on the Road Back, Bergmoser Says, March 11 p 17

BERLIN FOUNDRY CO.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

STANLEY BERMAN
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

VICTOR BESSO
Low Aluminum Demand Worries Producers, June 1 p 57

VICTOR BESSO
Low Aluminum Demand Worries Producers, June 1 p 57

BETHLEHEM STEEL CORP.
Bethlehem and USS Part on Size of Price Hike, Feb 2 p 64
Bethlehem's Prices May Set Pattern, June 1 p 57
The Boom in Energy The Oil Industry Suppliers, March 23 p 29
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28
Inland's No. 7 Start-Up More than Pushing the Right Buttons, by G.J. McManus, March 2 p MP-7
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
Poor Rail Car Ordering Hurts Steelmakers, March 2 p 25
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Service Center Meeting Draws Large Crowd, June 1 p 60
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Senses a New Era Dawning, June 10 p 13
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Steel Summary: More Prospects of Profit, March 2 p 92
Submerged Injections Applied to Openhearths, May 4 p MP-3
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95
"We Are What We Are," Bethlehem's Trautlein, by G.J. McManus, Apr 15 p 43
Why Automotive is Putting Its Faith in High Strength Steel, by R.R. Irving, Jan 14 p 47

PIERRE BEZIEN
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65

JOHN BIAFORE
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39

BICKLEY FURNACES, INC.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

EULA BINGHAM
OSHA Issues Industrial Noise Standards, Feb 2 p 16

BITUMINOUS COAL OPERATORS' ASSN
Miners Approve Pact, End 72-Day Walkout, June 22 p 20

C. L. BLACKBURN
Offshore Work Needs Fair Political Winds, May 25 p 14

N. P. BLAKE
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

BLAKE & JOHNSON CO.
Blake & Johnson Now Part of Industry History, Feb 11 p 17

RAY H. BLAKEMAN
Service Centers in the Eighties, May 13 p A-1

BLAST FURNACES
Ajax Magnethermic Wins Furnace Contract, Jan 5 p MP-3
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29
Inland's No. 7 Start-Up More than Pushing the Right Buttons, by G.J. McManus, March 2 p MP-7
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23

KARL BLEIMANN
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

E. W. BLISS DIV.
Aluminum Foil Gets Fine Tuning, Apr 6 p MP-4
GE Receives Order for Aluminum Complex, Apr 6 p MP-4
Pickup in Flat-Rolled Gains Strength, May 25 p 95

BLISS & LAUGHLIN STEEL CORP.
Inland Sees Shipments Totalling 94 Million Tons, Apr 27 p 82
Service Centers in the Eighties, May 13 p A-1

P. D. BLOCK, JR.
P.D. Block Jr. Retired Inland Steel CEO Dies, June 22 p 17

JOHN E. BLOMQUIST
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113

QUENTIN M. BLOOM
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

BARBARA BLUM
EPA Eases Air Rules for Can Manufacturers, Jan 14 p 19

GEORGE F. BOBART
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

BOCMIN METALS LTD.
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

RICHARD P. BODINE
Don't Delay Capital Spending, NMBTA Urges, June 1 p 12

BODINE CORP.
Don't Delay Capital Spending, NMBTA Urges, June 1 p 12

BOEING CO.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
American Airlines Picks Boeing's 757, March 2 p 20
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

FRED BOHL
Are Service Centers Getting Ready to Spend? May 13 p 152

A. L. BOLTON, JR.
It's Back to College for CEO's This Time to Teach, by J.D. Baxter, March 23 p 44

BOLTON-EMERSON INC.
It's Back to College for CEO's This Time to Teach, by J.D. Baxter, March 23 p 44

GEORGE BONAR
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

ROBERT E. BONI
Service Centers in the Eighties, May 13 p A-1
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23

BONNEVILLE POWER ADMINISTRATION
Pacific Aluminum Gets Power At High Price, Jan 26 p 77

W. A. BOOTH
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

BOOZ, ALLEN & HAMILTON, INC.
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

BORAZON CBN GRINDING PROGRAMS
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140

BORG-WARNER CORP.
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
Wooing Shareholders is Full-Time Job, June 10 p 39

J. M. BORN
Kentucky Electric Likes Ladle Metallurgy, Apr 6 p 99

BOSTON DIGITAL CORP.
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66

DICK BOULIS
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

D. F. BOVIE
Welding and Robotics, March 23 p A-1

JAMES D. BOWEN
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

ARNOLD G. BOWLES
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

JAMES BOYD
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

CLIFFORD BRAKE
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

RICHARD G. BRADENBURG
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

BRANSON CLEANING EQUIPMENT CO.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

BRASS
Copper Distributors Mildly Optimistic, March 23 p 153

BRAZING
Welding and Robotics, March 23 p A-1

ROBERT BREHAN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

KARL K. BRETT
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

JOSEPH P. BRENNAN
Miners Approve Pact, End 72-Day Walkout, June 22 p 20

DERRICK L. BREWSTER
Inland Sees Shipments Totalling 94 Million Tons, Apr 27 p 82

BRIBERY
Reagan Backs Softer Overseas Bribery Bill, June 10 p 16

BRIDGEPORT TOOL & DIE CORP.
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51

PHILLIP H. BRIESE
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

BRILLON IRON WORKS
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

BRITISH STEEL CORP.
Steel Survey Shows Pause in Expansion, May 4 p W-1

WILLIAM E. BROCK
Reagan Backs Softer Overseas Bribery Bill, June 10 p 16
Reagan Names Brock to Top Trade Post, Feb 2 p 19
Trigger Prices Expected to Highlight Talks, June 1 p 58
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39

WILLIAM BRODHEAD
Japanese Autos Could Face Trade Restraints, March 11 p 15

C

C-E LUMMUS DIV.
New Reduction Process Improves Iron Pellets, Apr 6 p MP-3

CF & I STEEL CORP.
The Boom in Energy The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95
Wean Builds Seamless Tube Mill for CF&I, March 2 p MP-6

C. I. I. CORP.
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

C-R-O, INC.
Service Center in the Eighties, May 13 p A-1
Welding and Robotics, March 23 p A-1

CSX CORP.
Consortium to Build $150 Million Facility, March 2 p 23

CABOT CORP.
Alloy 718: The Workhouse of Superalloys, by R.R. Irving, June 10 p 77
Cabot Corp. Buys Two Furnaces, June 1 p MP-2
Cabot Wagers $13 Million on Aluminum's Alloy Needs, by R.J. Regan, June 1 p MP-17
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93
Mechanical Alloying: It Works, June 10 p 84
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35
Welding and Robotics, March 23 p A-1

WAYNE CAGLE
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

R. L. CAHOON
The Boom in Energy The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

PHILIP CALDWELL
Ford Will Spend Over $4 Billion by 1984, Jan 26 p 16
UAW Says Chrysler Was Unique Case, June 1 p 12

CALIFORNIA
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

CALIFORNIA EMPLOYMENT DEVELOPMENT DEPT.
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49

E. JORDAN BROOKES CO.
Copper Distributors Mildly Optimistic, March 23 p 153

ROBERT BROOKES
Copper Distributors Mildly Optimistic, March 23 p 153

B. R. BROWN
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23

DAVID BROWN
J&L Strips a Mill of Its Troubles, by K.W. Bennett, Feb 2 p MP-15

EDMUND G. BROWN
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

GLEN BROWN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

R. F. FRANKLIN BROWN, JR.
Copper Distributors Mildly Optimistic, March 23 p 153

ROBERT S. BROWN
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93

ROBERT BRUMWELL
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

BRYANT GRINDER DIV
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

BUDD CO.
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Budd Co. Entering Freight Car Market, March 2 p 25

BUDGETS
Battle Lines Drawn for Tax Cut Debate, May 25 p 13
Carter's Budget Will Get Blitzed by Reagan, Feb 2 p 15
Ex-Im Head Campaigns Against Budget Cuts, May 13 p 11

BUFFALO FORGE CO.
Buffalo Forge Finds Its 'White Knight', Feb 23 p 25

BUILDING CONSTRUCTION
Housing Starts Sag, Feb 11 p 36

BULLARD CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
NC: A Big Turn for the Better, March 2 p 90

THOMAS BULLOCK
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51

WILLIAM BURNS
NAM Targets National Priorities Agenda, by E.W. Bowers, May 4 p 51

EDWARD R. BURRELL
Nickel Supply Demand Could Get Minor Blips, Apr 15 p 96

BUSES
Frame Cracks Plague Grumman's Buses, Feb 2 p 21

GEORGE BUSH
Now We'll Find Out What We're Made Of, by Gene Beaudet, Feb 23 p 5

WILLIAM E. BUTLER
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39

CARL D. BUTTS
New Galvanized Product Assumes Dual Roles, by J.J. Obrzut, Apr 6 p 71

ROBERT L. CALLAHAN
Industry Must Cope with Changing Winds of Innovation, by R.F. Harvey, Apr 6 p 65

CALMA CO.
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1

CAMBRIDGE SYSTEMS CORP.
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117

CAMCAR-TEXTRON DIV.
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

CAMERON IRON WORKS
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

LOUIS CAMINO
J&L Strips a Mill of Its Troubles, by K.W. Bennett, Feb 2 p MP-15

ROBERT CAMPBELL
Sun Gives Up the Ship: Will Fabricate, Jan 26 p 21

CAMPBELL SOUP CO.
Industry Must Cope with Changing Winds of Innovation, by R.F. Harvey, Apr 6 p 65

CANADA
Comparing Growth Rates of Major Nations, March 11 p 29

CANADIAN STEEL SERVICE CENTRE INSTITUTE
Canadian Centers See Shipments Fall, Apr 15 p 98

DAN CANNON
NAM Targets National Priorities Agenda, by E.W. Bowers, May 4 p 51

CANS
EPA Eases Air Rules for Can Manufacturers, Jan 14 p 19
Steelworkers, Can Companies Sign New Pact, March 2 p 20

CAPITAL EXPENDITURES
Are Service Centers Getting Ready to Spend? May 13 p 152
Can U.S. Automakers Dig Up $12 Billion to Fund Their Modernization Programs? May 13 p 8
Capital Appropriations Rose in First Quarter, June 22 p 37
Capital Spending Will Go Up Again in '81, Apr 27 p 32
Don't Delay Capital Spending, NMBTA Urges, June 1 p 12
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Ford Will Spend Over $4 Billion by 1984, Jan 26 p 16
GE Foresees Slow Pace for the Economy in '81, Feb 11 p 13
Interest Rate Surge Takes Toll on Plant Spending, by J.D. Baxter, Jan 26 p 28
Is There Gold in Them Thar Valleys? by Gene Beaudet, Apr 6 p 5
Just How 'Obscene' are Corporate Profits? by J.D. Baxter, Feb 11 p 28
Orders Continue on a Plateau, But at Least It is a High One, Apr 27 p 38
Republic's De Lancey Sees a Capital Spending Surge, by G.A. Weimer, May 25 p 36
Sorting Things Out: A Short Q & A, by Gene Beaudet, Apr 15 p 7
Steel Just Fair '80; Nonferrous Mixed, May 4 p 27
Well, Before They Bring It Up, by Gene Beaudet, March 23 p 5
What Kind of Alternative is This? by Gene Beaudet, March 11 p 5

HUGH L. CAREY
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

CHARLES A. CARLSON, JR.
Carlson Retiring: Wilson Named CEO at Lukens, Feb 11 p 20

DON CARLSON
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117

CARLTON MACHINE TOOL CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

FRANK CARLUCCI
Defense Billions How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21

ARLO F. CARNEY
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89

DENNIS J. CARNEY
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Wheeling-Pittsburgh Plans Expansion, June 10 p 104

WILLIAM R. CARPENTER
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

CARPENTER TECHNOLOGY CORP.
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77
Beaver Hands Roedel CEO Slot at Carpenter, March 2 p 92
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23

F. G. CARRICK
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

THOMAS CARROLL
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

BRYAN CARSBERG
Inflation Accounting Takes Its Toll, But is a Valuable Tool, by Roger Lopata, May 25 p 55

J. KENNETH CARSE
Maho Enters U.S. Market with Connecticut-Based Operation, March 11 p 15

JOSEPH CARTER
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33

HOWARD B. CARY
Welding and Robotics, March 23 p A-1

COYLE W. CASE
Welding and Robotics, March 23 p A-1

J. I. CASE CO.
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
Recovery Seen in Farm, Construction Equipment, March 11 p 12
Service Centers in the Eighties, May 13 p A-1

CORNELIUS J. CASEY
Inflation Accounting Takes Its Toll, But is a Valuable Tool, by Roger Lopata, May 25 p 55

JOSEPH CASEY
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33
Valve Makers Urged to Support 10-5-3 Bills, Apr 6 p 19

WILLIAM CASEY
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

CASTINGS
Driver-Harris Bridges Casting Methods Gap, March 2 p MP-5
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Techmet Introduces New Casting Method, Apr 6 p MP-3

CRAIG CASTLE
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

A. M. CASTLE & CO.
Service Centers Remain Skeptical of 1981, Jan 14 p 64

CAST METALS FEDERATION
Talking Business, June 10 p 47

CAST METAL INDUSTRIES
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9
Foundries Continue to Pour Money into Improvements, by K.W. Bennett, Apr 6 p MP-9
Process Reduces Cost of Making Iron Castings, Apr 6 p MP-4

CATERPILLAR MEXICANA, S.A.
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

CATERPILLAR TRACTOR CO.
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52
Off-Road Equipment Mired in Sales Slump, March 2 p 17
Recovery Seen in Farm, Construction Equipment, March 11 p 12
Talking Business, June 10 p 47

FORD CAUFFIEL
Service Centers Aim to Offer More Service, June 22 p 120

CAUFFIEL MACHINERY CO.
Service Centers Aim to Offer More Service, June 22 p 120

CENTER FOR FUTURES RESEARCH
Get Workers into the Act of Entitlements Hobble Productivity, by C.T. Post, June 22 p 79

CENTER FOR INTERNATIONAL BUSINESS CYCLE RESEARCH
How's the Economy in Major Nations? May 13 p 29

CERAMICS
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79

JOHN CHAFFEE
Reagan Backs Softer Overseas Bribery Bill, June 10 p 16

ROSEMARY CHALK
Engineering Ethics Move Out of Factory and into Courtroom, by R.F. Harvey, Feb 11 p 43

GOVIND R. CHANANI
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

DAVID C. CHANG
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

CHAPARRAL STEEL CO.
Credit Managers Find More Interest in Their Work, by S.T. Parker, March 11 p 42

ANDREW J. CHAPMAN
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

CHARLESWATER PRODUCTS CO.
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

CHASE ECONOMETRIC ASSOCIATES
Low Aluminum Demand Worries Producers, June 1 p 57
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

CHEMETRON CORP.
Welding and Robotics, March 23 p A-1

CHEVROLET DIV.
GM Managers Optimistic that Auto Buyers Will Return to the Market this Year, Feb 23 p 23

CHICAGO SLITTER CO.
Copper Distributors Mildly Optimistic, March 23 p 153
Pickup in Flat-Rolled Gains Strength, May 25 p 95

LAWRENCE CHIMERINE
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 o 33

JOHN D. CHRISTOPHER
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

CHROMALLOY DIV.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

CHRYSLER CORP.
Are Smaller Cars Creating Bigger Risks for Auto makers? by B.H. Berry, Apr 15 p 33
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Cavalcade of News Metalworking's Stories of 1980, Jan 5 p 119
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Chrysler's Fate Hangs on Concessions, Loans, Jan 26 p 16
Chrysler's on the Road Back, Bergmoser Says, March 11 p 17
Chrysler's Road to Recovery Gets Rockier, Jan 14 p 13
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 33
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
UAW Says Chrysler Was Unique Case, June 1 p 12
U.S. Automakers Write '80 Reports in Red, March 11 p 18
The Worst is Over, Claims Chrysler's Iacocca, June 22 p 17

CHRYSLER INSURANCE CO.
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45

SAM CHURCH
Coal Labor Talks Progress Very Slowly, Feb 11 p 22
Mine Workers Oppose Cutting Synfuels Funds, March 2 p 15

CINCINNATI, INC.
Copper Distributors Mildly Optimistic, March 23 p 153
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

CINCINNATI MILACRON
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Computers and Manufacturing, June 22 p A-1
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Welding and Robotics, March 23 p A-1
Welding is Falling into Robot's Clutches, Apr 27 p 11
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

CINCINNATI STEEL PRODUCTS CO.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

CIRCLE TOOL & MFG. CO.
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

CITY INVESTING CORP.
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

CLARK EQUIPMENT CO.
Service Center Orders are Perking Up, May 4 p 115

CLARK INDUSTRIAL TRUCK DIV.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

CLAUS CUTLERY CO.
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57

JOAN CLAYBROOK
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

CLEANING
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

DOROTHY CLIFTON
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

CLIMAX MOLYBDENUM CO.
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, by R.J. Regan, May 4 p 63
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

COAL
Coal Business Becomes Attractive Investment, Apr 6 p 98
Coal Labor Talks Progress Very Slowly, Feb 11 p 22
Coal Output and Use Will Rise this Year, Jan 14 p 19
Coal-Slurry Pipeline Could Start by 1985, Apr 27 p 12
Coal Strike Won't Hurt Steel Output, May 25 p 91
Consortium to Build $150 Million Facility, March 2 p 23
GM Wonders: Gas? Diesel? Electric? Coal Powder? June 22 p 18
Government Regs Hurt Coal, Says DOE, March 2 p 23
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52
Oil Money Can Finance Coal's Development, March 2 p 23
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

COATINGS
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

JOSEPH COGAN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

COILS
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

COKE
Direct Reduction Stirs Confrontation between Two Competing Companies, Jan 5 p MP-3
Inland's No. 7 Start-Up More than Pushing the Right Buttons, by G.J. McManus, March 2 p MP-7

WILLIAM COLE
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

D. L. COLEMAN
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29

SEYMOUR COLMAN
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

COLT INDUSTRIES, INC.
Critical Minerals Issue Needs Control, Steel Says, June 10 p 21

COLUMBIA UNIVERSITY
Use Resources or Risk Global Chaos, Says CEQ, Feb 2 p 16

COLUMBUS MCKINNON CORP.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

COMBUSTION ENGINEERING INDUSTRY, INC.
New Reduction Process Improves Iron Pellets, Apr 6 p MP-3

COMMERCIAL CREDIT CO.
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

COMMERCIAL NATIONAL BANK (CHICAGO)
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

COMMERCIAL SHEARING INC.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

COMMITTEE FOR ECONOMIC DEVELOPMENT
Key Economic Factors for the 1980s, March 2 p 36

COMPOSITE MATERIALS
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

COMPUTER AIDED MANUFACTURING-INTERNATIONAL, INC.
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65

COMPUTER ASSISTED DESIGN
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

COMPUTER ASSISTED MANUFACTURING
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Yamazaki Another Japanese Heavyweight Enters the U.S. Market, by R.J. Larsen, June 10 p 43

COMPUTER NETWORKS
System Alpha Packs Dual Control Punch, by A.M. Greene, Feb 11 p 64

COMPUTERS
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Computers and Manufacturing, June 22 p A-1
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123
Software Advances Pay Big Dividends, by A.M. Greene, June 1 p MP-10
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127
System Alpha Packs Dual Control Punch, by A.M. Greene, Feb 11 p 64
U.S. Data Processing Leadership Threatened, Apr 15 p 15

COMPUTERVISION CORP.
CAD/CAM Shapes up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63

BARBER CONABLE
Business Displeased with Tax Compromises, June 22 p 15

HOWARD CONANT
Pickup in Flat-Rolled Gains Strength, May 25 p 95

CONAWAY PRESSURE SYSTEMS CO.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

CONCO-TELLUS, INC.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

CONDUCTIVITY
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140

CONFERENCE BOARD
Capital Appropriations Rose in First Quarter, June 22 p 37
Capital Spending Will Go Up Again in '81, Apr 27 p 32
Comparing Growth Rates of Major Nations, March 11 p 29
Consumer Hopes Sputter, Jan 26 p 36
Consumers Brighten, June 10 p 58
Equipment is Better, But Its Productivity Falls How Come? by J.D. Baxter, June 22 p 33
Fewer Multinationals are Based in U.S., May 4 p 33
Financial Execs See Clear Skies in '82, June 10 p 39
How's the Economy in Major Nations? May 13 p 29
Is There a Chance of Global Recession? Feb 11 p 27
Look for Double-Digit Wage Hikes in '81, Feb 2 p 27
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55
Who Says We'll Blow the Money? by Gene Beaudet, June 22 p 7

CONGDON & CARPENTER CO.
Service Center Sees Signs of Improvement, Apr 27 p 91

CONOCO, INC.
Coal Business Becomes Attractive Investment, Apr 6 p 98

CONSARC, INC.
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77
Cabot Corp. Buys Two Furnaces, June 1 p MP-2

CONSERVATION
Use Resources or Risk Global Chaos, Says CEQ, Feb 2 p 16

CONSOLIDATED ALUMINUM CORP.
Aluminum Rallies for Another Big Year, Jan 14 p 58

CONSOLIDATION COAL CO.
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

CONSOLIDATED RESEARCH, INC.
Silver Has Lost Its Speculative Luster, March 11 p 66

CONSTRUCTION EQUIPMENT
Construction Equipment Takes to Air, March 2 p 81
Equipment Makers are 'Cautiously Optimistic Feb 11 p 22
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Off-Road Equipment Mired in Sales Slump, March 2 p 17
Recovery Seen in Farm, Construction Equipment, March 11 p 12

CONSTRUCTION INDUSTRY
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Off-Road Equipment Mired in Sales Slump, March 2 p 17

CONSTRUCTION INDUSTRY MANUFACTURERS ASSN.
Equipment Makers are 'Cautiously Optimistic, Feb 11 p 22

CONSUMER PRODUCT SAFETY COMMISSION
Is This a Step Forward for Product Safety? by Gene Beaudet, June 10 p 7

CONSUMERISM
Consumers are Charging, Feb 2 p 41
Consumers Brighten, June 10 p 58

A. CONTE
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

CONTINENTAL CAN CO.
Steelworkers, Can Companies Sign New Pact, March 2 p 20

CONTINENTAL METALS CORP.
Foy Named Chairman of Metals Trading Firm, Apr 6 p 99

CONTINUOUS CASTING
Aluminum Foil Gets Fine Tuning, Apr 6 p MP-4
Atlantic Puts Money in Continuous Casting, by G.J. McManus, March 2 p MP-26
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7
Driver-Harris Bridges Casting Methods Gap, March 2 p MP-5
GF Receives Order for Aluminum Complex, Apr 6 p MP-4
National Steel Starts New Slab Caster, Apr 6 p MP-3
Republic Steel Plans Continuous Slab Caster, June 1 p MP-2
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Steel Took Bruising Fall in 1980, March 11 p 65
"We Are What We Are," Bethlehem's Trautlein, by G.J. McManus, Apr 15 p 43

CONTROL DATA CORP.
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

CONTROL LASER CORP.
Welding and Robotics, March 23 p A-1

CONTROL SYSTEMS
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

CONVEYOR ENGINEERING CO.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

ROBERT COOK
GM Managers Optimistic that Auto Buyers Will Return to the Market this Year, Feb 23 p 23

PAUL J. COOPER
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

W. PAUL COOPER
Acme-Cleveland Chief Notes Orders Decline, Says Backlogs are Strong, Feb 11 p 17
Don't Delay Capital Spending, NMTBA Urges, June 1 p 12
Trading Legislation Sent to the House, May 4 p 21
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

COPPER
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Copper Distributors Mildly Optimistic, March 23 p 153
Copper Keeps Tight Reins on Production, Jan 14 p 62
Copper Output Cut in Line with Demand, March 11 p 65
Copper Price, Demand Poised to Go Up, Feb 23 p 88
Copper Prices See-Saw During this Quarter, May 13 p 150
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89
Copper Producers Cut Output to Match Sales, May 4 p 113
Copper Producers' Stocks Have Slimmed Down, Apr 6 p 98
Copper Producers' Stocks Likely to Rise, Jan 26 p 77
Copper Stike Helped Importers to U.S., March 2 p 95
Copper Supply/Demand Stay Well Balanced, June 10 p 101
Depressed Demand Saps Copper's Strength, June 22 p 118
First Quarter Report—Putting the Punch Back in Metalworing, by Iron Age Editors, Apr 6 p 29
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38

COPPER & BRASS SALES CO.
Copper Distributors Mildly Optimistic, March 23 p 153

COPPER & BRASS SERVICENTERS ASSN.
Copper Distributors Mildly Optimistic, March 23 p 153
Copper Supply/Demand Stay Well Balanced, June 10 p 101

COPPER ROUNDTABLE
Copper Strike Helped Importers to U.S., March 2 p 95

COPPERWELD STEEL CO.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus, and R.E. Harvey, Jan 26 p 63
Service Centers in the Eighties, May 13 p A-1
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

FREDERICK L. CORBAN
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

COREY STEEL CO.
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

HAROLD CORNER
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
NTMA Chief Sees Slow Pace for 1981, Apr 6 p 15
NTMA Courts Congress to Get Some Action, May 25 p 19
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

CORPANE INDUSTRIES, INC.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

F. G. CORRIGAN
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53

CORROSION
Alloys Pass Corrosion Tests, March 2 p 81
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

ROBERT R. COSNER
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

COST CONTROLS
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

DOUGLAS M. COSTLE
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34

COUNCIL OF STATE PLANNING AGENCIES
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

COUNCIL ON ENVIRONMENTAL QUALITY
Use Resources or Risk Global Chaos, Says CEQ, Feb 2 p 16

WILLIAM COX
Income Creeps Up, Feb 11 p 36
Orders Grow Slimmer, Jan 26 p 36
Retail Sales Flat, May 4 p 49
Retail Sales Slip, June 10 p 58

JAMES M. COYNE
Talks Take the Pulse of Steel Industry, Feb 2 p MP-3

DERYL CRAIG
Skilled Manpower Shortages: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

ROBERT W. CRANDALL
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34

CREDIT
Cash Flow Bind Irks Credit Managers, March 2 p 36
Consumers are Charging, Feb 2 p 41
Credit Managers Find More Interest in Their Work, by S.T. Parker, March 11 p 42

CROMPTON & KNOWLES CORP.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

CRONATION WELDING SYSTEMS, INC.
Welding and Robotics, March 23 p A-1

RALPH CROSS
Don't Delay Capital Spending, NMTBA Urges, June 1 p 12

CROSS & TRECKER CORP.
Don't Delay Capital Spending, NMTBA Urges, June 1 p 12
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

T. N. CROWLEY
Poor Rail Car Ordering Hurts Steelmakers, March 2 p 25

CROWN CORK AND SEAL CO.
Steelworkers, Can Companies Sign New Pact, March 2 p 20

CRUCIBLE SPECIALTY METALS DIV.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

CRYSTALOID ELECTRONICS DIV.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

ROBERT G. CUFF
Help is on the Way for Spot Welding, by R.R. Irving, May 25 p 87

PETER J. CULLINEN
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31

DAVID M. CULVER
Development Snags Hit Australian Minerals, June 22 p 115
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46

CUMMINS ENGINE CO.
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39

DAVID M. CUNNINGHAM
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140

JOHN F. CUNNINGHAM
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

SHIRLEY CURRIE
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43

FRANK T. CURTAIN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HERSCHEL CUTLER
Area Scrap Reports, Jan 5 p 165
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
Scrap Had Fair '80; Outlook for this Year Uncertain, Jan 5 p 165

JAMES F. CUTLER
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

CUTTERS UNLIMITED (CU), INC.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

CUTTING TOOLS
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Machine Tool Backlog is Over $5 Billion, Feb 11 p 15
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Machine Tool Orders Dipped in April, June 10 p 13
Machine Tool Orders Rose 27 Pct in March, May 13 p 12
Machine Tool Orders Slow, Shipments Up, Apr 15 p 15
Machine Tool Shipments Glow in November, Jan 14 p 13

CYCLOPS CORP.
Driver-Harris Bridges Casting Methods Gap, March 2 p MP-5
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Techmet Introduces New Casting Method, Apr 6 p MP-3

D

WILLIAM DAGGETT
Service Centers See Signs of Improvement, Apr 27 p 91

DAIMLER BENZ AG
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65

ROBERT DAMERJIAN
High Interest Rates are Effect, Not Cause, Feb 2 p 27

DANA CORP.
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

JOHN C. DANFORTH
Japanese Autos Could Face Trade Restraints, March 11 p 15

JOHN R. DANLY
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus, and R.E. Harvey, Jan 26 p 63

DANLY MACHINE CORP.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

DATA GENERAL CORP.
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

DATA PROCESSING SYSTEMS
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
U.S. Data Processing Leadership Threatened, Apr 15 p 15

M. O. DAVIES
Submerged Injections Applied to Openhearths, May 4 p MP-3

DAVID DAVIS
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

MICHAEL W. DAVIS
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
White-Sundstrand is On the Move Again, by R.J. Larsen, Feb 2 p 57

DAVID C. DAWSON
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

DAYCO CORP.
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

MARK DECKER
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24

DEERE & CO.
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57
Process Reduces Cost of Making Iron Castings, Apr 6 p MP-4
Recovery Seen in Farm, Construction Equipment, March 11 p 12

JOHN DEERE TECHNOLOGIES INTERNATIONAL, INC.
Process Reduces Cost of Making Iron Castings, Apr 6 p MP-4

DEFENSE
Defense Billions How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33
Litton is Well-Armed for Defense Buildup May 4 p 16
Looking Ahead in '81 The Issues and People of 1981, Jan 5 p 19
Rockwell Positioned for Defense Buildup, March 2 p 16
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

DONALD E. DE KIEFFER
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47

WILLIAM J. DE LANCEY
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47
EPA Eases Steel Industry's Air Pollution Deadlines, . . . March 23 p 15
Ore Carrier Named After Republic Head, Jan 5 p MP-5
Republic Steel Plans Continuous Slab Caster, June 1 p MP-2
Republic's De Lancey Sees a Capital Spending Surge, by G.A. Weimer, May 25 p 36
Steel Imports Dipped a Bit in 1980, Feb 23 p 88
Steel Senses a New Era Dawning, June 10 p 13
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34
Who Says We'll Blow the Money? by Gene Beaudet, June 22 p 7

THOMAS DE PINTO
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

DETREX CHEMICAL INDUSTRIES, INC.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

DEUTSCHES INSTITUT FUR NORMUNG
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

JON R. DEVAULT
Hercules Sees Strong Growth in Graphite Use, May 25 p 17

DE VILBISS CO.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

DEVRY INSTITUTE OF TECHNOLOGY
Training Skilled Workers is Growing Priority, Apr 6 p 101

E. M. DE WINDT
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

H. BENSON DEXTER
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

SIDNEY DICHTER
Steel Distributors Doing Better than Expected, March 11 p 71

DICKEY-JOHN CORP.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

DIESEL ENGINES
GM Wonders: Gas? Diesel? Electric? Coal Powder? June 22 p 18

DIGITAL EQUIPMENT CORP.
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55
System Alpha Packs Dual Control Punch, by A.M. Greene, Feb 11 p 64

DIRECT REDUCTION
Direct Reduction Stirs Confrontation between Two Competing Companies, Jan 5 p MP-3
New Reduction Process Improves Iron Pellets, Apr 6 p MP-3

DIRECT ROLLING
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

DIRECTORIES
Computers and Manufacturing, June 22 p A-1

DISASTERS
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28

BRIAN E. DISBURY
Copper Producers Cut Output to Match Sales, May 4 p 113

DIXIE TOOL & DIE, INC.
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

CHARLES DIXON
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31

W. W. DODGE
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

ROBERT DOLE
Will Reagan Bend on Tax Cut Plan? June 10 p 16

WILLIAM E. DOLLAR
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22

WILLIAM F. DOLLAR & ASSOCIATES
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22

REGIS E. DOMBROWSKI
Software Advances Pay Big Dividends, by A.M. Greene, June 1 p MP-10

DOMINION FOUNDRIES AND STEEL, LTD.
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

RAYMOND J. DONOVAN
Cabinet Nominees Vow 'Common Sense' Policies, Jan 14 p 13
Donovan Favors 'Self-Inspection' of Workplace Hazards, Apr 15 p 13
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

PAUL DOSIER ASSOCIATES, INC.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

ALFRED E. DOUGHERTY, JR.
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34

DOUGLAS AIRCRAFT CO. DIV.
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

DOW CHEMICAL CO.
Can Magnesium Dent the Auto Industry? by R.J. Regan, June 1 p 32
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

CHARLES P. DOWNER
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

WILLIAM F. DRAKE, JR.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

DRAVO CORP.
The Boom in Energy The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
Direct Reduction Stirs Confrontation between Two Competing Companies, Jan 5 p MP-3
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

H. E. DREHER
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

DRESSER INDUSTRIES, INC.
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

DRILLING
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

ROBERT F. DRINAN
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34

DRIVER-HARRIS CO.
Driver-Harris Bridges Casting Methods Gap, March 2 p MP-5
Techmet Introduces New Casting Method, Apr 6 p MP-3

DRIVE SYSTEMS
GE Receives Order for Aluminum Complex, Apr 6 p MP-4

PETER F. DRUCKER
Equipment is Better, But Its Productivity Falls How Come? by J.D. Baxter, June 22 p 33

PETER F. DRUCKER
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

E. W. DRUM
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus, and R.E. Harvey, Jan 26 p 63

CHARLES DRURY
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

DUCOMMUN METALS CO.
How Service Centers View the New Year, Jan 5 p 168

DUCTILE IRON
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

MICHAEL DUGGAN
Service Center Orders are Perking Up, May 4 p 115

T. N. DUNCAN
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

R. W. DUNHAM
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

ALFRED DUPAUL
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

E. I. DUPONT DE NEMOURS & CO.
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

DURABLE GOODS
Orders Grow Slimmer, Jan 26 p 36

JOHN H. DURANT
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

DYNASCAN CORP.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

E

EC PROGRAMS, INC.
Help is on the Way for Spot Welding, by R.R. Irving, May 25 p 87

EG&G, INC.
It's Back to College for CEO's This Time to Teach, by J.D. Baxter, March 23 p 44

ESAB-HEALTH GROUP
Welding and Robotics, March 23 p A-1

EASTERN METAL MILL PRODUCTS CO.
Copper Distributors Mildly Optimistic, March 23 p 153

EASTERN STAINLESS STEEL CO.
New Mill Starts to Roll for Eastern Stainless, by R.R. Irving, March 2 p MP-21
Service Centers in the Eighties, May 13 p A-1

EASTMAN KODAK CO.
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

EATON CORP.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

M. S. ECKSTEIN
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

ECONOMICS
Bring Back the Gold Standard? Forget It! June 1 p 29
By Any Measure, It's No Good, by Gene Beaudet, June 1 p 5
CPI's Advance Slows, June 10 p 58
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Cavalcade of News Metalworking's Stories of 1980, Jan 5 p 119
Comparing Growth Rates of Major Nations, March 11 p 29
Consumers Brighten, June 10 p 58
Control Money Supply, Says Treasury's Regan, Feb 23 p 23
Did Poor Statistics Warp Economic Policy? June 22 p 37
Did the President's View of the Economy Puzzle You? by Gene Beaudet, May 13 p 5
Ex-Im Head Campaigns Against Budget Cuts, May 13 p 11
Federal Borrowings Dent Money Market, Apr 27 p 32
A Final Try at Sorting Things Out, by Gene Beaudet, May 4 p 7
Financial Execs See Clear Skies in '82, June 10 p 39
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
GE Foresees Slow Pace for the Economy in '81, Feb 11 p 13

How's the Economy in Major Nations? May 13 p 29
Inflation Accounting Shows Hollow Economy, March 2 p 36
Is Inflation's Fast Pace Slowing Just a Bit? Apr 6 p 27
Is There a Chance of Global Recession? Feb 11 p 27
Is this Our Last Chance? by Gene Beaudet, March 2 p 7
Key Economic Factors for the 1980s, March 2 p 36
Looking Ahead in '81 The Issues and People of 1981, Jan 5 p 19
Management in America Reshaping the Vision Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59
More on Sorting Things Out, by Gene Beaudet, Apr 27 p 5
New OMB Head Reveals Reagan Economic Plan, Feb 11 p 15
Now We'll Find Out What We're Made Of, by Gene Beaudet, Feb 23 p 5
Prices Cool Somewhat, Feb 2 p 41
Sorting Things Out: A Short Q &A, by Gene Beaudet, Apr 15 p 7
Well, Before They Bring It Up, by Gene Beaudet, March 23 p 5
What Kind of Alternative is This? by Gene Beaudet, March 11 p 5
Where Not to Look for Answers, by Gene Beaudet, Jan 26 p 7
Who Said Inflation was Easing Off? It's Up Again, March 11 p 38
Who Says We'll Blow the Money? by Gene Beaudet, June 22 p 7
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

ECONOMICS LABORATORY, INC.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

EDGCOMB STEEL OF NEW ENGLAND, INC.
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

EDUCATION
It's Back to College for CEO's This Time to Teach, by J.D. Baxter, March 23 p 44

EDUCATIONAL TESTING SERVICE
Putting Flexibility into Benefit Plans Increases Options, K.R. Moldt, Apr 27 p 43

JERRY EDWARDS
NC: A Big Turn for the Better, March 2 p 90

HERBERT L. EISELSTEIN
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77

CHARLES J. ELDER
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19

ELECTIONS (PRESIDENTIAL)
Cavalcade of News Metalworking's Stories of 1980, Jan 5 p 119

ELECTRICAL CHARGES
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

ELECTRIC FURNACE CO.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

ELECTRIC POWER CONSUMPTION
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55
Pacific Aluminum Gets Power At High Price, Jan 26 p 77

ELECTRIC POWER PRODUCTION
Ormet Installs New Bag Filter System, Mar 2 p MP-5

ELECTRIC POWER RESEARCH INSTITUTE
Homopolar Welding: Industry's Interested, by R.R. Irving, March 2 p 73
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79

ELECTRIC VEHICLES
GM Wonders: Gas? Diesel? Electric? Coal Powder? June 22 p 18

ELECTRON BEAMS
Welding and Robotics, March 23 p A-1

ELECTRON CORP.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

ELECTRONICS
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

ELECTROSLAG REMELTING
Cabot Corp. Buys Two Furnaces, June 1 p MP-2

JOH F. ELLIOT
Steel Output Could Total 1 Billion Tons by 1980, by P.J. Cathey, Jan 5 p MP-27

JOHN C. ELLSWORTH
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

ELLSWORTH CABINET INC.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

EMERGENCY MANAGEMENT AGENCY
Could the Synfuels Act Expand Mineral Output? May 4 p 21

MARK EMERSON
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

EMERSON ELECTRIC CO.
How One Company Made Itself Recession Proof, Jan 26 p 26
Welding and Robotics, March 23 p A-1

EMHART CORP.
It's Back to College for CEO's This Time to Teach, by J.D. Baxter, March 23 p 44

EMHART MACHINERY GROUP
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49

EMPLOYEE BENEFITS
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43

EMPLOYMENT
Jobless Rate Steady, March 2 p 43
Jobs Remain Scarce, May 4 p 49
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

JAMES EMSHOFF
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65

ENERGY
The Boom in Energy The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
A Final Try at Sorting Things Out, by Gene Beaudet, May 4 p 7
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55
IRS Is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49
Save Synfuels Corp., Urges Chairman Sawhill, Feb 11 p 20
Think Big on Energy Saving, Says Expert, May 13 p 15
Unique Furnace Helps Verson Save Energy, May 4 p MP-1
Use Resources or Risk Global Chaos, Say CEQ, Feb 2 p 16
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

ENERGY MATERIALS CONSERVATION CORP.
Ajax Magnethermic Wins Furnace Contract, Jan 5 p MP-3

ENERGY TRANSPORTATION SYSTEM INC.
Coal-Slurry Pipeline Could Start by 1985, Apr 27 p 12

JOSEPH ENGELBERGER
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96

ENGINEERING
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

ENGINES
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

FRED C. ENGLISH
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

FRANK ENTWISTLE
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

ENVIRONMENT
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

ENVIRONMENTAL PROTECTION AGENCY
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
EPA Eases Steel Industry's Air Pollution Deadlines. . . , March 23 p 15
EPA Eases Air Rules for Can Manufacturers, Jan 14 p 19
EPA Regulations Eased for U.S. Steel, Feb 2 p MP-5
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
Foundrymen Draw a Bead on Legislative Targets; EPA, OSHA in the Bull's Eye, March 2 p 15
Ormet Installs New Bag Filter System, March 2 p MP-5
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34
Think Big on Energy Savings, Says Expert, May 13 p 15

EQUAL EMPLOYMENT OPPORTUNITY PROGRAM
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

EQUIPMENT
Equipment is Better, But Its Productivity Falls How Come? by J.D. Baxter, June 22 p 33

ERIE CONCRETE & STEEL SUPPLY CO.
Service Centers See Signs of Improvement, Apr 27 p 91

ERIE PRESS SYSTEMS
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

ERIE SHEET STEEL CORP.
Steel Distributors Doing Better than Expected, March 11 p 71

ERNST & WHINNEY CO.
Inflation Accounting Shows Hollow Economy, March 2 p 36
Key Indicators: Simpler Way to Manage, by Roger Lopata, Jan 26 p 41

ETHERNET DIV.
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

ETHICS
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

ETHYL CORP.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

EUCLID, INC.
Equipment Makers are 'Cautiously Optimistic,' Feb 11 p 22

EUROPE
Aluminum Output Cut in Japan and Europe, Apr 27 p 82
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
SSC'I Hears Varied Steel Supply Forecasts, June 10 p 111

EUROPEAN ECONOMIC COMMUNITY
Europeans Worried by Rising Tide of Japanese Machine Tool Imports, Apr 15 p 18
U.S. Machine Tool Builders Off-Balance Overseas, by E.W. Bowers, March 11 p 36

H. G. EVANS
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

EX-CELL-O CORP.
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Detroit Will Remain the Biggest Market for American Machine Tool Builders, May 4 p 19
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

EXCELLON INDUSTRIES, INC.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

EXECUTIVES
Downturn Brings Pay Cut for Managers at IH, Feb 2 p 19
Financial Execs See Clear Skies in '82, June 10 p 39
It's Back to College for CEO's This Time to Teach, by J.D. Baxter, March 23 p 44
Message for President from Mid-Range CEOs, Jan 26 p 26

EXHAUST EMISSIONS
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49

EXPORT-IMPORT BANK
Ex-Im Head Campaigns Against Budget Cuts, May 13 p 11

EXPORTS
Aluminum Exports Rose 300 Pct in '80, March 2 p 103
Export Was Big Factor in '80 for Aluminum, Feb 2 p 64
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79
Looking Ahead in '81 The Issues and People of 1981, Jan 5 p 19
Protectionism is on the Rise, GE Exec Warns, Jan 14 p 16
Scrap Export Controls Silly, Says ISIS Head, May 4 p 114
Trigger Prices are Still Alive, Says Baldrige; Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
U.S. Aluminum Exports to Japan Tripled, May 4 p 19
Washinton's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39
White House Backing Export Initiative, Apr 27 p 8

F

FMC CORP.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

FAILURE INFORMATION CENTER
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

RONALD C. FALOON
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

W. H. FANCHER
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

JAMES N. FARLEY
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

FARM EQUIPMENT
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Recovery Seen in Farm, Construction Equipment, March 11 p 12
Talking Business, June 10 p 47

FARRELL CONNECTICUT DIV.
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49

CHARLES R. FASSINGER
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

FASTENERS
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

C. C. FAULKNER, JR.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

FEDERAL BUDGETS
Carter's Budget Will Get Blitzed by Reagan, Feb 2 p 15

FEDERAL EMERGENCY MANAGEMENT AGENCY
New Strategic Minerals Guidelines Proposed, June 22 p 20
U.S. Minerals Policy Starts to Evolve, Apr 15 p 13

FEDERAL ENERGY REGULATORY COMMISSION
Think Big on Energy Saving, Says Expert, May 13 p 15

FEDERAL RESERVE BANK
Consumers are Charging, Feb 2 p 41

FEDERAL RESERVE BANK OF ATLANTA
Did Poor Statistics Warp Economic Policy? June 22 p 37

FEDERAL RESERVE BANK OF DALLAS
Bring Back the Gold Standard? Forget It! June 1 p 29

FEDERAL RESERVE BANK OF SAN FRANCISCO
Federal Borrowings Dent Money Market, Apr 27 p 32

FEDERAL RESERVE BOARD
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Capacity Rate Rises, March 11 p 35
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Cross Currents Buffet Interest Rates, March 11 p 29
Interest Rate Surge Takes Toll on Plant Spending, by J.D. Baxter, Jan 26 p 28
Output Winds Down, March 11 p 35
Reagan Aides, Volcker Differ on Tax Cut Timing, Feb 11 p 13
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

FEDERAL SCREW WORKS
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

FEDERAL TRADE COMMISSION
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
FTC Probing Standards Setting Organizations, March 2 p 16

ROBERT H. FELDER
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43

BERT FERNAEUS
Sandvik Scales Up Its Welding Output, June 1 p 17

DAVID FERNALD
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

FERRO CORP.
Unique Furnace Helps Verson Save Energy, May 4 p MP-1

FERROALLOYS ASSN.
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

FILTERS
Ormet Installs New Bag Filter System, March 2 p MP-5

FINANCE
Borrowing is Rising, March 2 p 43
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
Can U.S. Automakers Dig Up $12 Billion to Fund Their Modernization Programs? May 13 p 8
Capital Appropriations Rose in First Quarter, June 22 p 37
Cash Flow Bind Irks Credit Managers March 2 p 36
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Chrysler's Fate Hangs on Concessions, Loan, Jan 26 p 16
Chrysler's on the Road Back, Bergmoser Says, March 11 p 17
Chrysler's Road to Recovery Gets Rockier, Jan 14 p 13
Coal Business Becomes Attractive Investment, Apr 6 p 98
Consumer Hopes Sputter, Jan 26 p 36
Consumers are Charging, Feb 2 p 41
Credit Managers Find More Interest in Their Work, by S.T. Parker, March 11 p 42
Cross Currents Buffet Interest Rates, March 11 p 29
Ex-Im Head Campaigns Against Budget Cuts, May 13 p 11
Federal Borrowings Dent Money Market, Apr 27 p 32
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22
General Numeric Hopes to Double Control Sales, Apr 27 p 15
High Interest Rates are Effect, Not Cause, Feb 2 p 27
High Interest Rates Don't Curb Expansion, June 1 p 29
How One Company Made Itself Recession Proof, Jan 26 p 26
Income Creeps Up, Feb 11 p 36
Inflation Accouting Takes Its Toll, But is a Valuable Tool, by Roger Lopata, May 25 p 55
Interest Rate Surge Takes Toll on Plant Spending, by J.D. Baxter, Jan 26 p 28
Is There Gold in Them Thar Valleys? by Gene Beaudet, Apr 6 p 5
Just How 'Obscene' are Corporate Profits? by J.D. Baxter, Feb 11 p 28
Management in America—Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Ar 15 p 59
'Margins are Going to Have to Improve,' National's Love, by G.J. McManus, May 4 p 37
Message for President from Mid-Range CEOs, Jan 26 p 26
Middle East Man Buys into Kaiser Steel, Apr 27 p 85
Oil Money Can Finance Coal's Development, March 2 p 23
Ouch! It's Time for the Profit Center Plan for Next Year! May 4 p 69
Prices Cool—Somewhat, Feb 2 p 41
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Republic's De Lancey Sees a Capital Spending Surge, by G.A. Weimer, May 25 p 36
Retail Sales Flat, May 4 p 49
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13
Steel—Just Fair '80; Nonferrous Mixed, May 4 p 27
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
TRW Sets Its Goals in Non-Inflated Terms, May 4 p 33
Talking Business, June 10 p 47
U.S. Automakers Write '80 Reports in Red, March 11 p 18
U.S. Steel Beginning to See a Turnaround, by G.J. McManus, Apr 27 p 29
Where Will GM Get the $40 Billion? May 25 p 13
Wooing Shareholders is Full-Time Job, June 10 p 39
The Worst is Over, Claims Chrysler's Iacocca, June 22 p 17

FINANCIAL ACCOUNTING STANDARDS BOARD
Inflation Accounting Takes Its Toll, But is a Valuable Tool, by Roger Lopata, May 25 p 55

FIRES
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28

FIRST NATIONAL BANK OF CHICAGO
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

FIRST NATIONAL MAINTENANCE CORP.
High Court Will Rule on Plant Closing Case, Feb 2 p 15

DONALD G. FLOM
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

FLUID POWER SYSTEMS
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

FLUOR CORP.
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

FLYNN & EMRICH CO.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

FOIL
Aluminum Foil Gets Fine Tuning, Apr 6 p MP-4
GE Receives Order for Aluminum Complex, Apr 6 p MP-4

FOKKER-VFW-B. V.
A Tale of Adhesively-Boded Aircraft, by R.R. Irving, May 4 p 87

J. C. FORD, JR.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

T. MITCHELL FORD
It's Back to College for CEO's—This Time to Teach, by J.D. Baxter, March 23 p 44

FORD MOTOR CO.
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Automakers Pare Ouput Schedules, March 23 p 17
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Defense Billions—How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
Ford Will Spend Over $4 Billion by 1984, Jan 26 p 16
Homopolar Welding: Industry's Interested, by R.R. Irving, March 2 p 73
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
UAW Says Chrysler Was Unique Case, June 1 p 12
U.S. Automakers Write '80 Reports in Red, March 11 p 18
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

FORD STEEL CO.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

FORECASTING
Capital Spending Will Go Up Again in '81, Apr 27 p 32
Coal Output and use Will Rise this Year, Jan 14 p 19
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
GE Foresees Slow Pace for the Economy in '81, Feb 11 p 13
GM Managers Optimistic that Auto Buyers Will Return to the Market this Year, Feb 23 p 23
Financial Execs See Clear Skies in '82, June 10 p 39
How Service Centers View the New Year, Jan 5 p 168
Inland Sees Shipments Totalling 94 Million Tons, Apr 27 p 82
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55
Is There a Chance of Global Recession? Feb 11 p 27
Key Economic Factors for the 1980s, March 2 p 36
Key Indicators: Simpler Way to Manage, by Roger Lopata, Jan 26 p 41
Look for Double-Digit Wage Hikes in '81, Feb 2 p 27
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52
NTMA Chief Sees Slow Pace for 1981, Apr 6 p 15
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
R & D Spending Could Hit $60.6 Billion this Year, Jan 26 p 76
Recovery Seen in Farm, Construction Equipment, March 11 p 12
A Resolution You Can't Refuse, by Gene Beaudet, Jan 5 p 7
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
SSCI Sees Some Gains in '81—But Slim, Feb 2 p 69
Scrap Had Fair '80; Outlook for this Year Uncertain, Jan 5 p 165
Steel Output Could Total 1 Billion Tons by 1990, by P.J. Cathey, Jan 5 p MP-27
Steel Senses a New Era Dawning, June 10 p 13
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

FOREIGN INVESTMENTS
Middle East Man Buys into Kaiser Steel, Apr 27 p 85

FOREIGN TRADE
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Export Was Big Factor in '80 for Aluminum, Feb 2 p 64
Japanese Autos Could Face Trade Restraints, March 11 p 15
Protectionism is on the Rise, GE Exec Warns, Jan 14 p 16
Reagan Backs Softer Overseas Bribery Bill, June 10 p 16
Reagan Names Brock to Top Post, Feb 2 p 19
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35
Trade Deficit Lost Weight in March, May 13 p 12
Trade Deficit Went from Worse to Bad in 1980, Feb 23 p 28
Trading Legislation Sent to the House, May 4 p 21
Trigger Prices Expected to Highlight Talks, June 1 p 58
U.S. Data Processing Leadership Threatened, Apr 15 p 15
U.S., Japan to Free Government Purchasing, Jan 14 p 15
U.S. Machine Tool Builders Off—Balance Overseas, by E.W. Bowers, March 11 p 36
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39
White House Backing Export Initiative, Apr 27 p 8

FORGING INDUSTRY ASSN.
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33

FORGINGS
Battelle Labs Studying Close Tolerance Forging, March 2 p 17
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Teledyne Allvac Plans $80 Million Expansion, June 22 p 115

FORMATION INC.
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31

A. A. FORNATARO
Service Centers in the Eighties, May 13 p A-1

Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78

JOHN B. FOSTER
How Service Centers View the New Year, Jan 5 p 168
Service Centers in the Eighties, May 13 p A-1

L. B. FOSTER CO.
Service Center Meeting Draws Large Crowd, June 1 p 60

FOUNDATION FOR PUBLIC AFFAIRS
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

FOUNDRY INDUSTRY
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Foundries Continue to Pour Money into Improvements, by K.W. Bennett, Apr 6 p MP-9
Foundrymen Draw a Bead on Legislative Targets; EPA, OSHA in the Bull's-Eye, March 2 p 15

LAWRENCE FOX
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39

M. M. FOX
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

ROBERT FOX
Is Japan Doing a Better Job Managing Inventory, by R.E. Harvey, June 1 p 38

LEWIS W. FOY
Foy Named Chairman of Metals Trading Firm, Apr 6 p 99

FRANCE
Aluminum Distributors Keep Inventories, March 2 p 95
Comparing Growth Rates of Major Nations, March 11 p 29

MARK S. FRANKEL
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

WILLIAM R. FRANTA
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

DOUGLAS A. FRASER
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Chrysler's Road to Recovery Gets Rockier, Jan 14 p 13
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
UAW Says Chrysler Was Unique Case, June 1 p 12

AUDREY FREEDMAN
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49

HAMILTON FREEMAN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

FREIGHT CARS
Budd Co. Entering Freight Car Market, March 2 p 25
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Poor Rail Car Ordering Hurts Steelmakers, March 2 p 25

STUART M. FREY
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

PHILIP K. FRICKE
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45

D. K. FRICKS
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24

KENNETH A. FRIDAY
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

GEORGE FRIEDMAN
Service Centers Remain Cautious about Stocks, Apr 15 p 98

HANS FRIEDMAN
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

PERRY FRIEDMAN
Steel Distributors Doing Better than Expected, March 11 p 71

ROBERT A. FROSCH
The Space Shuttle Rockets Metalworking into the Future, by G.A. Weimer, March 11 p 22

FUEL CONSUMPTION
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29

FUELS
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

HERBERT FULDNER
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51

FULFLO SPECIALTIES CO.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

FULLERTON METALS CO.
Copper Distributors Mildly Optimistic, March 23 p 153

FULLERTON METALS CO.
Service Center Meeting Draws Large Crowd, June 1 p 60

FUMES
Ormet Installs New Bag Filter System, March 2 p MP-5

FURNACE LINERS
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29

FURNACES
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77
Cabot Corp. Buys Two Furnaces, June 1 p MP-2
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
High Fuel Bills Prompt Furnace Relining, by G.J. McManus, Apr 6 p MP-29
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Unique Furnace Helps Verson Save Energy, May 4 p MP-1
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

G

G&L IMPREGNATION SYSTEMS, INC.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

GCA VACUUM INDUSTRIES, INC.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

R. J. GALLAGHER
Service Center Meeting Draws Large Crowd, June 1 p 60

GALVANIZING
New Galvanized Product Assumes Dual Roles, by J.J. Obrzut, Apr 6 p 71

G. E. GANN
McLouth Sells J&L Its Stainless Plant, March 2 p 92

WILLIAM GAPP
Computers and Manufacturing, June 22 p A-1

JOHN GARCIA
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

LEO GARMAN
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

JOHN GARRETT
Software Keeps Track of Workers Exposed to Toxic Materials, K.R. Moldt, May 13 p 127

GASIFICATION
Will Synfuel Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

GAS TURBINES
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
GM Wonders: Gas? Diesel? Electric? Coal Powder? June 22 p 18
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

HARLEY GAUKER
Ajax Magnethermic Wins Furnace Contract, Jan 5 p MP-3

GEARS
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

JUREGEN C. GEHRELS
General Numeric Hopes to Double Control Sales, Apr 27 p 15

JAMES A. D. GEIER
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

HAROLD GENNEN
Management in America—Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59

GENERAL ACCOUNTING OFFICE
Am I Wrong to Let this Get My Goat? by Gene Beaudet, Feb 2 p 7
Defense Billions—How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21
Help Steel, Says GAO, and It Can Compete, Jan 26 p 15

GENERAL BROACH AND ENGINEERING CO.
Detroit Turns to Suppliers for Help in Manufacturing R&D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

GENERAL DYNAMICS CORP.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

GENERAL ELECTRIC CO.
CAD/CIM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
GE Foresees Slow Pace for the Economy in '81, Feb 11 p 13
GE Receives Order for Aluminum Complex Apr 6 p MP-4
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Inflation Accounting Takes its Toll, But is a Valuable Tool, by Roger Lopata, May 25 p 55
Is Industry Failing to Use Robots Enough? June 10 p 23
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Management in America—Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
Protectionism is on the Rise, GE Exec Warns, Jan 14 p 16
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

GENERAL ELECTRIC CREDIT CORP.
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

GENERAL MOTORS CORP.
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Auto Market as Soft and Sluggish as Bayou, Feb 2 p 16
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Automakers Pare Output Schedules, March 23 p 17
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9
GM Managers Optimistic that Auto Buyers Will Return to the Market this Year, Feb 23 p 23
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96
GM Wonders: Gas? Diesel? Electric? Coal Powder? June 22 p 18
Is Industry Failing to Use Robots Enough? June 10 p 23
It's Back to School for Workers at GM, by G.A. Weimer, June 22 p 83
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Talking Business, March 2 p 49
UAW Says Chrysler Was Unique Case, June 1 p 12
U.S. Automakers Write '80 Reports in Red, March 11 p 18
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41
West Germans Market General Motors Process, Feb 2 p MP-3
Where Will GM Get the $40 Billion? May 25 p 13
Computers and Manufacturing, June 22 p A-1
General Numeric Hopes to Double Control Sales, Apr 27 p 15
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

GENERAL SHEET STEEL & PLATE CO.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

GENERAL SERVICES ADMINISTRATION
New Strategic Minerals Guidelines Proposed, June 22 p 20

GENERAL TELEPHONE & ELECTRONICS CORP.
Big Oil Baits Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

GENERATION METALS CORP.
Service Center Meeting Draws Large Crowd, June 1 p 60

GERALD METALS, INC.
Copper Strike Helped Importers to U.S., March 2 p 95

GERBER TECHNOLOGY CORP.
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1

RAVI GHAI
Computers and Manufacturing, June 22 p A-1

GIDDINGS & LEWIS, INC.
Aircraft Will Help Machine Tool Sales, May 13 p 15

The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

JOEL GILBERT
Think Big on Energy Saving, Says Expert, May 13 p 15

MARGARET M. GILSON
Welding and Robotics, March 23 p A-1

WILLIAM GIMBEL
Service Centers Remain Skeptical of 1981, Jan 14 p 64
Service Centers See Signs of Improvement, Apr 27 p 91

GIRARD BANK
High Interest Rates are Effect, Not Cause, Feb 2 p 27

FRANK GLASGOW
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

HOWARD GLAZER
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

PIERCE GLEFKE
Welding and Robotics, March 23 p A-1

ALVIN GLICK
Service Centers Remain Cautious about Stocks, Apr 15 p 98

E. E. GOETTE
Direct Reduction Stirs Confrontation between Two Competing Companies, Jan 5 p MP-3

GOLD
Bring Back the Gold Standard? Forget It! June 1 p 29

GOLIGHTLY & CO. INTERNATIONAL, INC.
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117

ROBERT P. GOMBAS
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

GERALD GORDON
Steel Distributors Doing Better than Expected, March 11 p 71

GORDON-RUPP CO.
Equipment Makers are 'Cautiously Optimistic', Feb 11 p 22

JAMES C. GORMAN
Equipment Makers are 'Cautiously Optimistic' Feb 11 p 22

ANN M. GORSUCH
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

CHESTER GOSS
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

JOHN W. GOTH
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, by R.J. Regan, May 4 p 63

GOULD, INC.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

PIERRE GOUSSELAND
Nonferrous Producers Talk about Oil's Lure, May 25 p 91
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46

GOVERNMENT
Am I Wrong to Let This Get My Goat? by Gene Beaudet, Feb 2 p 7
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
Cabinet Nominees Vow 'Common Sense' Policies, Jan 14 p 13
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Carter's Budget Will Get Blitzed by Reagan, Feb 2 p 15
Did the President's View of the Economy Puzzle You? by Gene Beaudet, May 13 p 5
A Final Try at Sorting Things Out, by Gene Beaudet, May 4 p 7
Is this Our Last Chance? by Gene Beaudet, March 2 p 7
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
More on Sorting Things Out, by Gene Beaudet, Apr 27 p 5
New OMB Head Reveals Reagan Economic Plan, Feb 11 p 15
Now We'll Find Out What We're Made Of, by Gene Beaudet, Feb 23 p 5
Mr. Reagan Appoints Regulatory Task Force, Feb 11 p 15
Patience! Patience! Who Needs Patience! by Gene Beaudet, Jan 14 p 7
Reagan Names Brock to Top Trade Post, Feb 2 p 19
U.S., Japan to Free Government Purchasing, Jan 14 p 15
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39
What Will Make the Reagan Program Work? by Gene Beaudet, Feb 11 p 5
Where Not to Look for Answers, by Gene Beaudet, Jan 26 p 7
White House Backing Export Initiative, Apr 27 p 8
Will Reagan Bend on Tax Cut Plan? June 10 p 16
Who Says We'll Blow the Money? by Gene Beaudet, June 22 p 7
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

GOVERNMENT REGULATION
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Clean Air Stretch-Out Awaits Move by House, Apr 27 p 11
DOE Appliance Rules are on the Back Burner, March 23 p 16
EPA Regulations Eased for U.S. Steel, Feb 2 p MP-5
FTC Probing Standards Setting Organizations, March 2 p 16
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
Foundrymen Draw a Bead on Legislative Targets: EPA, OSHA in the Bull's-Eye, March 2 p 15
Government Regs Hurt Coal, Says DOE, March 2 p 23
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
Mr. Reagan Appoints Regulatory Task Force, Feb 11 p 15
Regulations are Crimping Pipelines, Exec Says, March 23 p 20
Now We'll Find Out What We're Made Of, by Gene Beaudet, Feb 23 p 5
OSHA Issues Industrial Noise Standards, Feb 2 p 16
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Talking Business, March 2 p 49

H. E. GRAFF
New Galvanized Product Assumes Dual Roles, by J.J. Obrzut, Apr 6 p 71

JAMES A. GRAHAM
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

THOMAS C. GRAHAM
Service Centers in the Eighties, May 13 p A-1
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Talks Take the Pulse of Steel Industry, Feb 2 p MP-3

GRAPHITE
Hercules Sees Strong Growth in Graphite Use, May 25 p 17

JAMES A. GRAY
Machine Tool Backlog is Over $5 Billion, Feb 11 p 15
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Machine Tool Builders Warned of Imports Threat, Apr 6 p 16
Machine Tool Orders Dipped in April, June 10 p 13
Machine Tool Orders Rose 27 Pct in March, May 13 p 12
Machine Tool Orders Slow, Shipments Up, Apr 15 p 15
Machine Tool Orders Turn Soft in January, March 11 p 15
Machine Tool Shipments Glow in November, Jan 14 p 13

GRAY IRON
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

C. JACKSON GRAYSON
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33

GREDE FOUNDRIES INC.
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

JACK P. GREEN
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

JEROME GREEN
Recovery Seen in Farm, Construction Equipment, March 11 p 12

MICHAEL GREENFIELD
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

GREGORY GROUP, INC.
Material Handling Faces a Product Liability Crisis, by G.J. McManus, March 11 p 48

DONALD P. GRENIER
Welding and Robotics, March 23 p A-1

ERNEST J. E. GRIFFES
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43

W. T. GRIMM & CO.
Big Deals Dominated 1980 Merger Picture, Feb 11 p 27
Merger Activity Surges in First Quarter, May 13 p 29

WILLARD T. GRIMM
Merger Activity Surges in First Quarter, May 13 p 29

GRINDING
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140
Grinding Disc: New Kid on the Block is a Very Tough Customer! Feb 23 p 82
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
W&S Grinding Has Its Nose to the Grindstone, Apr 27 p 15
Welding and Robotics, March 23 p A-1

CARL GROSSWEHR
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

GRUMMAN AEROSPACE CORP.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Frame Cracks Plague Grumman's Buses, Feb 2 p 21

GRUPO INDUSTRIAL ALFA (MEXICO)
Direct Reduction Stirs Confrontation between Two Competing Companies, Jan 5 p MP-3

GULF OIL CORP.
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
Coal Business Becomes Attractive Investment, Apr 6 p 98
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

ALLEN D. GUNDERSON
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66

RHODES H. GUSTAFSON
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

R. M. GUTTSHALL
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

H

H. E. S. MACHINE TOOL, INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

H & R TOOL WORKS, INC.
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

WILLIAM A. HAAS
Pickup in Flat-Rolled Gains Strength, May 25 p 95
Service Centers in the Eighties, May 13 p A-1

BRUCE HAHN
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

G. G. HAHNEMANN
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

JAMES J. HAIGHT
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57

MARTIN R. HALEY
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

MARTIN HALEY CO.
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

E. M. HALKYARD
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43

DAN HALL
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

STEPHEN A. HALPERIN
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

HAMDEN STEEL & ALUMINUM CORP.
How Service Centers View the New Year, Jan 5 p 168

R. J. HAMER
Development Snags Hit Australian Minerals, June 22 p 115

HAMILTON STANDARD DIV.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79

WILLIAM HAMPSHIRE
Service Centers Remain Skeptical of 1981, Jan 14 p 64

HANDY & HARMAN
Silver Has Lost Its Speculative Luster, March 11 p 66

HUGH D. HANES
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

JACK HANNA
Detroit Turns to Suppliers for Help in Manufacturing R&D, by G.A. Weimer and R.E. Harvey, Jan 26 p 63

PATRICK J. HANRATTY
Computers and Manufacturing, June 22 p A-1

RAY HARMON
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38

HARNISCHFEGER CORP.
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
Service Center Orders are Perking Up, May 4 p 115

HARRINGTON CO.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

ROBERT E. HARRIS
Oil Drilling to Continue at Hectic Pace in '81, Jan 14 p 15

HARRIS TRUST & SAVINGS BANK (CHICAGO)
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

HARTFORD INSURANCE GROUP
Raising the Profile of Factory Safety, March 2 p 81

HARTFORD SPECIAL INC.
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

JAMES HARTY
Service Center Orders are Perking Up, May 4 p 115

HARVARD BUSINESS SCHOOL
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33
Inflation Accounting Takes Its Toll, But is a Valuable Tool, by Roger Lopata, May 25 p 55
It's Back to College for CEO's—This Time to Teach, by J.D. Baxter, March 23 p 44
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

D. J. HARVEY
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7

STAN HARVEY
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

ROGER W. HASSELQUIST
Service Centers in the Eighties, May 13 p A-1

ORRIN HATCH
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

HAUCK MFG. CO.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

HAYDEN, INC.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

C. I. HAYES, INC.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

HAYES-ALBION CORP.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

SAMUEL L. HAYES, III
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33

WARREN J. HAYFORD
Downturn Brings Pay Cut for Managers at IH, Feb 2 p 19

HAZARDS
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

RICHARD L. HEAD
More Capacity for Tubular Products Comes on Stream, March 23 p 33

HEALTH PROGRAMS
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

HEAT TREATING
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Mechanical Alloying: It Works, June 10 p 84
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

HEAVY OIL
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

RUSSELL A. HEDDEN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

RICHARD P. HEGRENES
Grinding Disc: New Kid on the Block is a Very Tough Customer! Feb 23 p 82
Service Centers in the Eighties, May 13 p A-1
Welding and Robotics, March 23 p A-1

JOHN HEIN
Fewer Multinationals are Based in U.S., May 4 p 33

HEINTZ DIV.
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

C. R. HEINZ
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

CARL HEINZ
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

JOHN J. HEINZ III
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39

MICHAEL HEISLEY
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

WALTER HELLER
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

WALTER HELLER & CO.
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

WALTER E. HELLER INTERNATIONAL CORP.
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

JOHN HENDRICKS
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HERCULES, INC.
Hercules Sees Strong Growth in Graphite Use, May 25 p 17

HERR-VOSS CORP.
Are Service Centers Getting Ready to Spend? May 13 p 152
Service Centers in the Eighties, May 13 p A-1
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78

HESSTON CO.
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

HEWLETT-PACKARD CO.
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Is There Trouble Brewing in California's Silicon Valley? by C.T. Post, May 13 p 131
Keeping Good Managers Isn't Difficult—But It Demands Planning, by P.J. Cathey, March 23 p 117

FRED M. HEYN
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

HEYWARD-ROBINSON CO.
Ormet Installs New Bag Filter System, March 2 p MP-5

JAMES R. HIGGINS
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89

W. T. HIGHBERGER
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

HIGH STRENGTH LOW ALLOY STEELS
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

JOHN HILINSKI
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

THOMAS L. HILKERT
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

JOHN M. HILL
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

LARRY D. HILL
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HILL-ACME CORP.
Are Service Centers Getting Ready to Spend? May 13 p 152
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

A. L. HILLEGASS
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95

DAVID G. HILLSTROM
Service Centers in the Eighties, May 13 p A-1

CURTIS HILLYER
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HILLYER CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HISTORY
Management in America—Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59

HITACHI
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7

DANIEL S. HOAG
System Alpha Packs Dual Control Punch, by A.M. Greene, Feb 11 p 64

WILLIAM H. HOBART
Welding and Robotics, March 23 p A-1

HOBART BROS. CO.
Welding and Robotics, March 23 p A-1

WALTER HOCHCHILD
Nonferrous Producers Talk about Oil's Lure, May 25 p 91

F. GALEN HODGE
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93

THOMAS HODGE
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

HODGE FOUNDRY CO.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

RONALD HOFFMAN
Soft Aluminum Market Brings on Discounting, March 23 p 149

DAVID HOHN
Welding and Robotics, March 23 p A-1

HOJOLATAY LAMINA S. A.
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

HOLCROFT DIV.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

GEORGE L. HOLDRIDGE
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HARRY HOLIDAY
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

ROBERT C. HOLLAND
Key Economic Factors for the 1980s, March 2 p 36

HOLO-KROME CO.
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

LEHNARD HOLSCHUH
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111

RICHARD HOLTKAMP
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

HOMOPOLAR GENERATORS
Homopolar Welding: Industry's Interested, by R.R. Irving, March 2 p 73

HONEYWELL INC.
Computers and Manufacturing, June 22 p A-1
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

HONING
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140

EDWIN HOOD
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

HOOKER CHEMICAL CORP.
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

RICHARD E. HOPKINS
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HORIZONTAL CASTINGS
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7

HORIZONTAL CASTINGS
West Germans Market General Motors Process, Feb 2 p MP-3

E. R. HORNBAKE
Service Centers in the Eighties, May 13 p A-1

HOT ISOSTATIC PRESSINGS
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

HOT ROLLING
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

HOT STRIP MILLS
J&L Strips a Mill of Its Troubles, by K.W. Bennett, Feb 2 p MP-15

HOUDAILLE INDUSTRIES, INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

E. F. HOUGHTON & CO.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

HOUSE OF STAINLESS, INC.
Service Centers in the Eighties, May 13 p A-1

JAMES HOWARD
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28

HOWMET ALUMINUM CORP.
Aluminum Rallies for Another Big Year, Jan 14 p 58

HOWMET ALUMINUM SALES CORP.
Service Centers Remain Skeptical of 1981, Jan 14 p 64

HOWMET TURBINE COMPONENTS CORP.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

ELTON HOYT III
Ore Carrier Named After Republic Head, Jan 5 p MP-5

HUDSON BAY MINING & SMELTING CO.
Copper Producers Cut Output to Match Sales, May 4 p 113

EUGENE D. HUG
Service Centers in the Eighties, May 13 p A-1

DAVID HUGHES
Think Big on Energy Saving, Says Expert, May 13 p 15

HUGHES AIRCRAFT CO.
Defense Contracts Will Prime the Pump, by E.W Bowers and G.J. McManus, Apr 15 p 40

HUGHES TOOL CO.
Are Thieves Riding High in the Oil Country? by S.T. Parker, May 4 p 45

HUGHES TOOL CO.
The Boom in Energy The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

HUNTINGTON ALLOYS, INC.
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77
Mechanical Alloying: It Works, June 10 p 34
Welding and Robotics, March 23 p A-1

HURCO MFG. CO., INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

JAMES HUSTON
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

HY-ALLOYS STEEL CO.
Service Centers in the Eighties, May 13 p A-1
Service Centers Remain Skeptical of 1981, Jan 14 p 64

HYDRA-POINT DIV.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HYDRAULIC SYSTEMS
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

HYSLA, S. A.
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111

HYSTER CO.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

I

LEE A. IACOCCA
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
The Worst is Over, Claims Chrysler's Iacocca, June 22 p 17

RICHARD ICHORD
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

J. P. IGNIZIO
Raising the Profile of Factory Safety, March 2 p 81

ILLINOIS INSTITUTE OF TECHNOLOGY RESEARCH INSTITUTE
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

IMPORTS
Cavalcade of News Metalworking's Stories of 1980, Jan 5 p 119
Commerce to Monitor Specialty Steel Imports, Jan 26 p 16
Commerce to Probe Stainless Imports, Apr 27 p 8
Japanese Autos Could Face Trade Restraints, March 11 p 15
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Machine Tool Builders Warned of Imports Threat, Apr 6 p 16
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Steel Imports Dipped a Bit in 1980, Feb 23 p 88
Steel Summary: Order Lag Has Arrived, June 22 p 115

INCO ELECTRO-ENERGY CORP.
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

INCO INC.
Nickel Supply/Demand Could Get Minor Blips, Apr 15 p 96
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46

INCO LTD.
Mechanical Alloying: It Works, June 10 p 84
Nickel Worries About Early Double-Dip, Jan 14 p 58
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

INDIANAPOLIS STEEL WAREHOUSE, INC.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

INDUCTION FURNACES
Ajax Magnethermic Wins Furnace Contract, Jan 5 p MP-3

INDUSTRIAL FASTENERS INSTITUTE
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

INDUSTRIAL GAS CLEANING INSTITUTE
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34

INDUSTRIAL HEATING EQUIPMENT ASSN.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

INDUSTRIAL MATERIALS TECHNOLOGY, INC.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

INDUSTRIAL RELATIONS
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

INDUSTRY
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65
Is Industry Failing to Use Robots Enough? June 10 p 23
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23
More on Sorting Things Out, by Gene Beaudet, Apr 27 p 5
NAM Targets National Priorities Agenda, by E.W. Bowers, May 4 p 51
Patience! Patience! Who Needs Patience! by Gene Beaudet, Jan 14 p 7

INFURNCO PTY., LTD. (South Africa)
Ajax Magnethermic Wins Furnace Contract, Jan 5 p MP-3

INGERSOLL MILLING MACHINE CO.
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

INGOTS
Aluminum Eases Off on Capacity Buildup, Apr 15 p 95
Aluminum Output Cut in Japan and Europe, Apr 27 p 82
Aluminum Output Strong, But Deliveries Slip, Jan 26 p 76
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113

INFORMATION RETRIEVAL
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

INLAND STEEL CO.
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Inland is Looking to Do More Things, by G.J. McManus, May 13 p 32
Inland Sees Shipments Totalling 94 Million Tons, Apr 27 p 82
Inland's No. 7 Start-Up More than Pushing the Right Buttons, by G.J. McManus, March 2 p MP-7
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55
P.D. Block Jr., Retired Inland Steel CEO Dies, June 22 p 17
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23
Submerged Injections Applied to Open-hearths, May 4 p MP-3

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

INSTITUTE OF GAS TECHNOLOGY
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

INSTITUTE OF SCRAP IRON AND STEEL
Area Scrap Reports, Jan 5 p 165
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
Scrap Export Controls Silly, Says ISIS Head, May 4 p 114
Scrap Had Fair '80; Outlook for this Year Uncertain, Jan 5 p 165

INSTRUMENTS
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

INSTRUMENTS AND CONTROLS
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

INSURANCE
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33
Product Liability: How to Prevent It, Feb 2 p 23

INTERIOR STEEL EQUIPMENT CO.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

INTERLAKE, INC.
Service Center Orders are Perking Up, May 4 p 115

INTERNAL REVENUE SERVICES
See: U.S. Internal Revenue Service

INTERNATIONAL ASSN. OF MACHINISTS
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23

INTERNATIONAL DATA CORP.
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

INTERNATIONAL HARVESTER CO.
Downturn Brings Pay Cut for Managers at IH, Feb 2 p 19
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23
Off-Road Equipment Mired in Sales Slump, March 2 p 17
Recovery Seen in Farm, Construction Equipment, March 11 p 12

INTERNATIONAL IRON AND STEEL INSTITUTE
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
Steel Output of IISI Countries Still Down, June 10 p 104

INTERNATIONAL PRIMARY ALUMINUM INSTITUTE
Aluminum Output Cut in Japan and Europe, Apr 27 p 82
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113
World Aluminum Output at Strong Level, June 10 p 101

INTERNATIONAL RELATIONS
Fewer Multinationals are Based in U.S., May 4 p 33
How's the Economy in Major Nations? May 13 p 29
Is There a Chance of Global Recession? Feb 11 p 27
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

INTERNATIONAL TELEPHONE & TELEGRAPH CO.
Management in America—Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59

INTERNATIONAL TRADE COMMISSION
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
U.S. Machine Tool Builders Off-Balance Overseas, by E.W. Bowers, March 11 p 36

INTERSTATE STEEL CO.
Pickup in Flat-Rolled Gains Strength, May 25 p 95

INTERTECT, INC.
Are Thieves Riding High in the Oil Country? by S.T. Parker, May 4 p 45

INVENTORIES
Aluminum Distributors Keep Inventories, March 2 p 95
Aluminum Exports Rose 300 Pct in '80, March 2 p 103
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Copper Producers' Stocks Have Slimmed Down, Apr 6 p 98
Diecasters Join Debate on Strategic Materials, June 1 p 15
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
Nickel's Supply-Demand Roller Coaster Gets Costlier, by Roger Lopata, March 11 p 30
Nickel Supply/Demand Could Get Minor Blips, Apr 15 p 96
Slack Aluminum Demands Hike Producers' Stocks, May 4 p 113
U.S. Minerals Policy Starts to Evolve, Apr 15 p 13

INVENTORS
America Needs a Couple of Thomas Alva Edisons, by S.T. Parker, June 1 p 24

INVESTMENTS
Coal Business Becomes Attractive Investment, Apr 6 p 98

IOWA PRECISION INDUSTRIES, INC.
Service Centers in the Eighties, May 13 p A-1

IPSEN INDUSTRIES
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

KENNETH G. IRISH
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49

IRON
Process Reduces Cost of Making Iron Castings, Apr 6 p MP-4

IRON CASTING SOCIETY
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

IRON ORE
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38
New Reduction Process Improves Iron Pellets, Apr 6 p MP-3
Ore Carrier Named After Republic Head, Jan 5 p MP-5
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23

ITALY
Comparing Growth Rates of Major Nations, March 11 p 29

MASAYOSHI ITO
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13

C. ITOH (America)
Japanese Trading Company Wins Discrimination Suit, May 13 p 8

C. ITOH LTD.
Japanese Trading Company Wins Discrimination Suit, May 13 p 8

F. K. IVERSON
Service Centers in the Eighties, May 13 p A-1
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

EIRO IWAMURE
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111

JAPANESE MACHINE TOOL BUILDERS ASSN.
Europeans Worried by Rising Tide of Japanese Machine Tool Imports, Apr 15 p 18

R. T. JARMUSCH
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

JEFFREY MINING MACHINE DIV.
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

LEON JEFFREYS
Steel Distributors Doing Better than Expected, March 11 p 71

JEFFREYS STEEL CO., INC.
Steel Distributors Doing Better than Expected, March 11 p 71

JOHN C. JENKINS
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

L. E. JENNEKE
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

R. E. JENNINGS
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

J

F. S. JACKSON
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

G. S. JACKSON
Service Center Wary of Plate Market, Feb 11 p 77

W. T. JACOBS
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

S. A. JACOBY
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78

FREDERICK G. JAICKS
Inland is Looking to Do More Things, by G.J. McManus, May 13 p 32
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23

JAMAICA
Saga Meets Reagan, Congressional Panels, Feb 11 p 73

ROBERT JANSON
Key Indicators: Simpler Way to Manage, by Roger Lopata, Jan 26 p 41

JAPAN
Aluminum Output Cut in Japan and Europe, Apr 27 p 82
Comparing Growth Rates of Major Nations, March 11 p 29
Europeans Worried by Rising Tide of Japanese Machine Tool Imports, Apr 15 p 18
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38
Japanese Autos Could Face Trade Restraints, March 11 p 15
Japanese Steelmakers Replace 'QC' with 'JK', May 13 p 149
Japanese Trading Company Wins Discrimination Suit, May 13 p 8
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
U.S. Aluminum Exports to Japan Tripled, May 4 p 19
U.S. Data Processing Leadership Threatened, Apr 15 p 15
U.S., Japan to Free Government Purchasing, Jan 14 p 15
World Aluminum Output at Strong Level, June 10 p 101
Yamazaki—Another Japanese Heavyweight Enters the U.S. Market, by R.J. Larsen, June 10 p 43

JESSOP STEEL CO.
Service Centers in the Eighties, May 13 p A-1

DENNIS JOHNSON
Service Centers in the Eighties, May 13 p A-1

GARY D. JOHNSON
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E Harvey, Jan 26 p 63
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

GARY H. JOHNSON
Welding and Robotics, March 23 p A-1

GEORGE JOHNSON
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38

O. P. JOHNSON
Welding and Robotics, March 23 p A-1

WALTER C. JOHNSON
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

F. W. JONES
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

FRANK JONES
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

FRANK W. JONES
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

OTTO JONES
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

REGINALD H. JONES
GE Foresees Slow Pace for the Economy in '81, Feb 11 p 13
Management in America—Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59
Protectionism is on the Rise, GE Exec Warns, Jan 14 p 16

JAMES JONES
Battle Lines Drawn for Tax Cut Debate, May 25 p 13

THOMAS JONES
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

TREVOR JONES
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

JONES & LAMSON CO.
Jones & Lamson Will Upgrade Lathe Production, June 22 p 22

JONES & LAUGHLIN STEEL CORP.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
J&L Strips a Mill of Its Troubles, by K.W. Bennett, Feb 2 p MP-15
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38
McLouth Sells J&L Its Stainless Plant, March 2 p 92
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5
Service Centers in the Eighties, May 13 p A-1
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Still Battered by Operating Costs, of Pollution Control, by G.J. McManus, May 4 p MP-5
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23
Talks Take the Pulse of Steel Industry, Feb 2 p MP-3

EARLE M. JORGENSEN CO.
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

JOHN JORGENSEN
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

R. V. JOSLYN
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

AVRID JOUPPI
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39
Where Will GM Get the $40 Billion? May 25 p 13

JOY MFG. CO.
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 14 p 52
Oil Money Can Finance Coal's Development, March 2 p 23

LENN JUDD
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49

K

H. H. KAEMMER
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

GERRY KAHLER
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39

F. T. KAISER
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

KAISER ALUMINUM & CHEMICAL CORP.
Aluminum Eases Off on Capacity Buildup, Apr 15 p 95
Aluminum Output Strong, But Deliveries Slip, Jan 26 p 76
Aluminum Rallies for Another Big Year, Jan 14 p 58
Can Magnesium Dent the Auto Industry? by R.J. Regan, June 1 p 32
Export Was Big Factor in '80 for Aluminum, Feb 2 p 64
Kaiser's Price Hikes Startle Industry, May 13 p 149
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113
Transport May be Big Aluminum Market, Apr 6 p 96

KAISER STEEL CORP.
Kaiser Steel Turns Waste Oil to Cash, June 1 p MP-1
Middle East Man Buys into Kaiser Steel, Apr 27 p 85

YEVGENY KALINNIKOV
An Inside Look at Soviet Steelmaking, Feb 2 p MP-19

PAUL KANE
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

KANE STEEL CO.
Steel Distributors Doing Better than Expected, March 11 p 71

KATY STEEL & ALUMINUM
Service Centers Remain Cautious about Stocks, Apr 15 p 98

HENRY KAUFMAN
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
High Interest Rates Don't Curb Expansion, June 1 p 29
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

KAWASAKI STEEL CORP.
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111

MITCHELL KEAMY
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

KEARNEY & TRECKER CORP.
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen Apr 15 p 74
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 2 p 87

STUART P. KEELER
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

ROBERT E. KEITH
Homopolar Welding: Industry's Interested, by R.R. Irving, March 2 p 73

MICHAEL J. KELIHER
Computers and Manufacturing, June 22 p A-1

GEORGE M. KELLER
Nonferrous Producers Talk about Oil's Lure, May 25 p 91

GAYNOR KELLEY
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

ROBERT KELLY, JR.
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

KEMMERER COAL CO.
Coal Business Becomes Attractive Investment, Apr 6 p 89

JACK KEMP
Kemp-Roth Bill Gets a New Lease on Life, by E.W. Bowers, Jan 14 p 28

KEMPER INSURANCE CO.
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

KENNAMETAL, INC.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

MARVIN KENNEBECK
Welding and Robotics, March 23 p A-1

KENNECOTT CORP.
Big Oil Baits Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Coal Business Becomes Attractive Investment, Apr 6 p 98
Copper Output Cut in Line with Demand, March 11 p 65
Copper Price, Demand Poised to Go Up, Feb 23 p 88
Depressed Demand Saps Copper's Strength, June 22 p 118
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

Nonferrous Producers Ask R & D for Energy and Emission Answers, by R.J. Regan, Feb 2 p 49
Nonferrous Producers Talk about Oil's Lure, May 25 p 91
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

CHRIS M. KENNEDY
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19

C. A. KENNINGTON
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

KENTUCKY ELECTRIC STEEL CO.
Kentucky Electric Likes Ladle Metallurgy, Apr 6 p 99

KENZLER ENGINEERING CO.
Foundries Continue to Pour into Money Improvement, by K.W. Bennett, Apr 6 p MP-9

OTTO KERN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

IKE KERRIDGE
The Boom in Energy—The Oil Industry Supplies Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

KIDDER, PEABODY & CO.
Development Snags Hit Australian Minerals, June 22 p 115

FRANK R. KIK
Inland's No. 7 Start-Up More than Pushing the Right Buttons, by G.J. McManus, March 2 p MP-7

KIMBERLY-CLARK CORP.
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

HAROLD W. KIPPERS
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

JOHN KIRKWOOD
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

H. KLAFF & CO.
Scrap Export Controls Silly, Says ISIS Head, May 4 p 114

MARY J. KLANSKY
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43

JACK KLAWITTER
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

ALBERT J. KLEIN
Will Powder Rolling Take on Sheet Steel? by R.R. Irving, June 1 p MP-15

MORTON J. KLEIN
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65

ARNOLD F. KLICK
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

JOSEPH K. KNOLL
Welding and Robotics, March 23 p A-1

KNOLL WELDING SUPPLY, INC.
Welding and Robotics, March 23 p A-1

CHARLES W. KOONTZ
New Mill Starts to Roll for Eastern Stainless, by R.R. Irving, March 2 p MP-21

KOPPERS CO.
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

KORF & FUCHS, INC.
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

KORF TECHNOLOGIES DIV.
Submerged Injections Applied to Openhearths, May 4 p MP-3

WALTER KOTTAS
Big Oil Baits Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34

G. J. KOVACS
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

RICHARD KRAFT
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

H. H. KREMER
Copper Price, Demand Poised to Go Up, Feb 23 p 88

ROBERT V. KRIKORIAN
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

W. H. KROME GEORGE
Aluminum Rallies for Another Big Year, Jan 14 p 58
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113

KRUMP MFG. CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

JAMES E. KROENCKE
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

KRUPP STAHL AG
Steel Survey Shows Pause in Expansion, May 4 p W-1

KERMIT KUCK
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

JAMES KURTZ STEEL CO.
Service Centers Remain Cautious about Stocks, Apr 15 p 98

EDWARD M. KUSKA
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

L

L & F INDUSTRIES
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

LABOR
Asarco Settles Strike, Boosts Zinc Production, March 2 p 97
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Coal Labor Talks Progress Very Slowly, Feb 11 p 22
Coal Strike Won't Hurt Steel Output, May 25 p 91
Copper Strike Helped Importers to U.S., March 2 p 95
Donovan Favors 'Self-Inspection' of Workplace Hazards, Apr 15 p 13
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79
Jobless Rate Steady, March 2 p 43
Jobs Remain Scarce, May 4 p 49
Look for Double-Digit Wage Hikes in '81, Feb 2 p 27
Mine Workers Okay New Three-Year Pact, Apr 6 p 15
Mine Workers Oppose Cutting Synfuels Funds, March 2 p 15
Miners Approve Pact, End 72-Day Walkout, June 22 p 20
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51
Steelworkers, Can Companies Sign New Pact, March 2 p 20
UAW Says Chrysler Was Unique Case, June 1 p 12

HERBERT LADDS
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

LADLES
Kentucky Electric Likes Ladle Metallurgy, Apr 6 p 99

JOHN LAGUARDIA
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

LAMINATES
A Tale of Adhesively-Bonded Aircraft, by R.R. Irving, May 4 p 87

JOAN E. LAMSON
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

R. W. LANDGRAF
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

LANDIS TOOL CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

ROBERT LANDON
Frame Cracks Plague Grumman's Buses, Feb 2 p 21

DONALD LANG
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

ZDENEK J. LANSKY
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

LAURENCE LAPP
Copper Distributors Mildly Optimistic, March 23 p 153

LASALLE MACHINE TOOL, INC.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

LASERS
Welding and Robotics, March 23 p A-1

BERNARD LASHINSKI
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53

LATHES
Europeans Worried by Rising Tide of Japanese Machine Tool Imports, Apr 15 p 18
Jones & Lamson Will Upgrade Lathe Production, June 22 p 22
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87
Yamazaki—Another Japanese Heavyweight Enters the U.S. Market, by R.J. Larsen, June 10 p 43

LAW AND LEGAL
Are Thieves Riding High in the Oil Country? by S.T. Parker, May 4 p 45
Court Gives Backing to Antitrust Laws, June 10 p 15
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
High Court Bans State Natural Gas Tax, June 10 p 15
High Court Will Rule on Plant Closing Case, Feb 2 p 15
Japanese Trading Company Wins Discrimination Suit, May 13 p 8
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48
Product Liability: How to Prevent It, Feb 2 p 23
Reagan Backs Softer Overseas Bribery Bill, June 10 p 16

LAWNDALE STEEL CO.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

THOMAS LAWSON
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

LEAD
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Lead Battery Market Hurt by Warm Winter, March 2 p 97
Lead Producers Need More Battery Sales, June 1 p 58
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49

DAVID LEAMAN
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

LEASING
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

DAVID W. LE BLOND
Makino Still Negotiating for Interest in Le Blond, Feb 23 p 25

LE BLOND MACHINE TOOL CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Makino Still Negotiating for Interest in Le Blond, Feb 23 p 25

LEEDS & NORTHRUP CO.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

LEGISLATION
Battle Lines Drawn for Tax Cut Debate, May 25 p 13
...But the Clean Air Act Won't Get a Major Overhaul, March 23 p 15
Clean Air Stretch-Out Awaits Move by House, Apr 27 p 11
Congress Hears Roderick Praise Reagan's Plan, March 11 p 12
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
Diecasters Join Debate on Strategic Materials, June 1 p 15
EPA Eases Steel Industry's Air Pollution Deadlines..., March 23 p 15
Foundrymen Draw a Bead on Legislative Targets; EPA, OSHA in the Bull's-Eye, March 2 p 15
Is This a Step Forward for Product Safety? by Gene Beaudet, June 10 p 7
Japanese Autos Could Face Trade Restraints, March 11 p 15
Just How 'Obscene' are Corporate Profits? by J.D. Baxter, Feb 11 p 28
Kemp-Roth Bill Gets a New Lease on Life, by E.W. Bowers, Jan 14 p 28
Patience! Patience! Who Needs Patience! by Gene Beaudet, Jan 14 p 7
Reagan Backs Softer Overseas Bribery Bill, June 10 p 16
Risk Retention Bill Likely to be Enacted, Apr 6 p 15
Save Synfuels, Corp., Urges Chairman Sawhill, Feb 11 p 20
Steel Execs Seek Better Enforcement of TPM, Feb 23 p 25
Steel Gets Three-Year Breather on Clean Air, by E.W. Bowers, June 10 p 21
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34
Trading Legislation Sent to the House, May 4 p 21
Valve Makers Urged to Support 10-5-3 Bills, Apr 6 p 19
Will Reagan Bend on Tax Cut Plan? June 10 p 16

LEWIS W. LEHR
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65

LOUIS W. LEHRBIER
Powder Process Gives Higher Yield, May 4 p MP-19

LELAND TUBE CO.
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

R. B. LEONARD
Welding and Robotics, March 23 p A-1

LEVINSON STEEL CO.
Service Centers Wary of Plate Market, Feb 11 p 77

SUSAN LEVIS
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

ARTHUR LEVITT, JR.
Message for President from Mid-Range CEOs, Jan 26 p 26

W. E. LEWELLEN
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

DREW LEWIS
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Japanese Autos Could Face Trade Restraints, March 11 p 15

LEYBOLD-HERAEUS VACUUM SYSTEMS INC.
Welding and Robotics, March 23 p A-1

J. LIBURDI
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

H. W. LICHENBERGER
Welding and Robotics, March 23 p A-1

KARL H. LIEBCHEN
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93

LIFT-ALL CO.
Materials Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

JAMES F. LINCOLN ARC WELDING FOUNDATION
Welding and Robotics, March 23 p A-1

LINCOLN ELECTRIC CO.
Welding and Robotics, March 23 p A-1

LINDBERG DIV.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

LINDE DIV.
Welding and Robotics, March 23 p A-1

FABIAN LINDEN
Consumer Hopes Sputter, Jan 26 p 36
Consumers Brighten, June 10 p 58
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

THOMAS J. LINDEN
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

M. A. LINDGREN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

FRANK LINDSAY
DOE Appliance Rules are on the Back Burner, March 23 p 16

THOMAS D. LINN
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 26 p 66

GEORGE E. LINNERT
Welding and Robotics, March 23 p A-1

LIQUEFACTION
Will Synfuels Survive Its Uncertain Future, by Roger Lopata, March 23 p 34

ARTHUR D. LITTLE, INC.
Equipment is Better, But Its Productivity Falls How Come? by J.D. Baxter, June 22 p 33
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

LITTON INDUSTRIES, INC.
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38
Litton is Well-Armed for Defense Buildup, May 4 p 16
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52
Material Handling Goes for Automation, Apr 27 p 12

LITTON UNIT HANDLING SYSTEMS DIV.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48
Service Center Orders are Perking Up, May 4 p 115

LOCKHEED-CALIFORNIA CO.
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

LOCKHEED CORP.
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

LOCKHEED-GEORGIA CO.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Construction Equipment Takes to Air, March 2 p 81

LODGE & SHIPLEY CORP.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

WILLIAM LONG
Service Center Orders are Perking Up, May 4 p 115

ROBERT L. LOUGHEAD
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Service Centers in the Eighties, May 13
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

HOWARD M. LOVE
'Margins are Going to Have to Improve' National's Love, by G.J. McManus, May 4 p 37
National Steel Starts New Slab Caster, Apr 6 p MP-3
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Senses a New Era Dawning, June 10 p 13

LOVEMAN STEEL CORP.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

JURGEN LUITHLE
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65

LARRY LUKENS
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

LUKENS STEEL CO.
The Boom in Energy The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
Carlson Retiring; Wilson Named CEO at Lukens, Feb 11 p 20
New at the Helm: Wilson Likes Lukens, May 13 p 36
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

MILTON F. LUNCH
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

ROBERT LUND
GM Managers Optimistic that Auto Buyers Will Return to the Market this Year, Feb 23 p 23

DAN LURIA
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53

JOHN LUTZ
If You Can't Buy Them, Build Them, Says Fabricator, by Roger Lopata, June 10 p 83

M

MG CUTTING SYSTEMS DIV.
Service Centers in the Eighties, May 13 p A-1

MG WELDING SYSTEMS DIV.
Welding and Robotics, March 23 p A-1

M. M. T. S., INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

MTD PRODUCTS INC.
Off-Road Equipment Mired in Sales Slump, March 2 p 17

MACHINERY AND ALLIED PRODUCTS INSTITUTE
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24

MACHINERY DEALERS NATIONAL ASSN.
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22

MACHINE TOOLS
Aircraft Will Help Machine Tool Sales, May 13 p 15
Allen-Bradley's New CNC Seeks World Market, June 22 p 22
Buffalo Forge Finds Its 'White Knight', Feb 23 p 25
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Computers and Manufacturing, June 22 p A-1
Detroit Will Remain the Biggest Market for American Machine Tool Builders, May 4 p 19
Did the President's View of the Economy Puzzle You? by Gene Beaudet, May 13 p 5
Europeans Worried by Rising Tide of Japanese Machine Tool Imports, Apr 15 p 18
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
General Numeric Hopes to Double Control Sales, Apr 27 p 15
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Jones & Lamson Will Upgrade Lathe Production, June 22 p 22
Machine Tool Backlog is Over $5 Billion, Feb 11 p 15
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Machine Tool Builders Warned of Imports Threat, Apr 6 p 16
Machine Tool Orders Dipped in April, June 10 p 13
Machine Tool Orders Rose 27 Pct in March, May 13 p 12
Machine Tool Orders Slow, Shipments Up, Ar 15 p 15
Machine Tool Orders Turn Soft in January, March 11 p 15
Machine Tool Shipments Glow in November, Jan 14 p 13
Maho Enters U.S. Market with Connecticut-Based Operation, March 11 p 15
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
NTMA Chief Sees Slow Pace for 1981, Apr 6 p 15
NTMA Courts Congress to Get Some Action, May 25 p 19
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51
U.S. Machine Tool Builders Off-Balance Overseas, by E.W. Bowers, March 11 p 36
U.S. Machine Tool Set to Expand Its Operations, Feb 2 p 19
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39
White-Sundstrand in On the Move Again, by R.J. Larsen, Feb 2 p 57
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87
Yamazaki—Another Japanese Heavyweight Enters the U.S. Market, by R.J. Larsen, June 10 p 43

MACHINING
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Get Superconductivity from Superabrasives, by J.J. Obrzut, May 13 p 140
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
NTMA Chief Sees Slow Pace for 1981, Apr 6 p 15
NTMA Courts Congress to Get Some Action, May 25 p 19
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51
White-Sundstrand is On the Move Again, by R.J. Larsen, Feb 2 p 57
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87
Yamazaki—Another Japanese Heavyweight Enters the U.S. Market, by R.J. Larsen, June 10 p 43

HARRY MACKE
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

J. J. MADDEN
Raising the Profile of Factory Safety, March 2 p 81

CHRISTOPHER L. MAGEE
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

MAGNAFLUX QUALITY SERVICES
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

MAGNESIUM
Can Magnesium Dent the Auto Industry? by R.J. Regan, June 1 p 32

MAGNUS DIV.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

MAHO MACHINE TOOL CORP.
Maho Enters U.S. Market with Connecticut-Based Operation, March 11 p 15

CORNELL C. MAIER
Aluminum Eases Off on Capacity Buildup, Apr 15 p 95
Aluminum Rallies for Another Big Year, Jan 14 p 58
Export War Big Factor in '80 for Aluminum, Feb 2 p 64
Kaiser's Price Hikes Startle Industry, May 13 p 149
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Transport May be Big Aluminum Market, Apr 6 p 96

ALEX C. MAIR
GM Wonders: Gas? Diesel? Electric? Coal Powder? June 22 p 18

MAKINO MILLING MACHINE CO.
Makino Still Negotiating for Interest in Le Blond, Feb 23 p 25

L. E. MALIM
Steel Producers in Search of Hot Connection, by G.J. McManus, Jan 5 p MP-7

MANAGEMENT
Chrysler's Road to Recovery Gets Rockier, Jan 14 p 13
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
A Final Try at Sorting Things Out, by Gene Beaudet, May 4 p 7
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65
It's Back to College for CEO's—This Time to Teach, by J.D. Baxter, March 23 p 44
Just How 'Obscene' are Corporate Profits? by J.D. Baxter, Feb 11 p 28
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117
Key Indicators: Simpler Way to Manage, by Roger Lopata, Jan 26 p 41
Management in America Reshaping the Vision Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59
'Margins are Going to Have to Improve,' National's Love, by G.J. McManus, May 4 p 37
Ouch! It's Time for the Profit Center Plan for Next Year! May 4 p 69
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39
Patience! Patience! Who Needs Patience! by Gene Beaudet, Jan 14 p 7
The Pressure is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55
TRW Sets Its Goals in Non-Inflated Terms, May 4 p 33
U.S. Steel Beginning to See a Turnaround, by G.J. McManus, Apr 27 p 29
U.S. Steel Plots Its Strategy for the '80s, by G.J. McManus, Jan 5 p MP-16
U.S. Steel Returning to Centralized Structure, Jan 14 p 62
"We Are What We Are," Bethlehem's Trautlein, by G.J. McManus, Apr 15 p 43

VINCENT MANKOWSKY
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus, and R.E. Harvey, Jan 26 p 63

WILBUR S. MANN
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63

MANNESMAN PIPE & STEEL CORP.
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93

MANUFACTURERS HANOVER TRUST CO.
Cross Currents Buffet Interest Rates, March 11 p 29

MANUFACTURING AND CONSULTING SERVICES, INC.
Computers and Manufacturing, June 22 p A-1

MANUFACTURING DATA SYSTEMS INC.
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

MANUFACTURING TECHNIQUES
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Computers and Manufacturing, June 22 p A-1
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

GEORGE C. MARAKAS
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

F. A. MARCH
Commerce to Probe Stainless Imports, Apr 27 p 8

EUGENE MARCH
Critical Minerals Issue Needs Control, Steel Says, June 10 p 21

JOHN A. MARINO
Why Furance Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

ARNE MARK
Welding and Robotics, March 23 p A-1

MARKETING
World Aluminum Market Gets Tougher, Feb 11 p 71

MARMON KEYSTONE CORP.
Service Centers in the Eighties, May 13 p A-1

DAN MARRIOTT
Diecasters Join Debate on Strategic Materials, June 1 p 15

ROBERT W. MARSHALL
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

THOMAS MARSHALL
Critical Minerals Issue Needs Control, Steel Says, June 10 p 21

MARTIN MARIETTA
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

MARTIN MARIETTA AEROSPACE
AJM Thrives on Making the "Impossible Jobs Possible, by J.J. Obrzut, March 11 p 57

MARTIN MARIETTA ALUMINUM
Service Centers in the Eighties, May 13 p A-1

DAVID E. MARTIN
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

JACK MARTIN
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

NEAL MARTIN
Japanese Trade Company Wins Discrimination Suit, May 13 p 8

VINCENT T. MARTIN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

WARREN MARTIN
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

RON MASNICKI
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Can Magnesium Dent the Auto Industry? by R.J. Regan, Ju 1 p 32
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65
Steel Output Could Total 1 Billion Tons by 1990, by P.J. Cathey, Jan 5 p MP-27

MASSACHUSETTS TECHNOLOGY DEVELOPMENT CORP.
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

DONALD J. MASSARO
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

VINCENT G. MASSARO
Financial Exees See Clear Skies in '82, June 10 p 39

MATERIAL HANDLING
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48
Material Handling Goes for Automation, Apr 27 p 12
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Welding and Robotics, March 23 p A-1
Welding is Falling into Robots' Clutches, Apr 27 p 11

MATERIAL HANDLING INSTITUTE
Material Handling Faces a Product Liability Crises, by G.A. Weimer, March 11 p 48

MATERIALS
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

MATERIALS PROPERTIES DATA CENTER
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

MATSUSHITA MFG. CO.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

JAMES MATTESICH
The Pressue is On to Keep Workers Off Permanent Layoff, by K.R. Moldt, Feb 23 p 49

BRUNO J. MAUER
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22

ROGER E. MAUGH
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19

MAXMILLIANSHUTTE AG
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

GERALD MAY
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

ELTON MAYO
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

MAYTAG CO.
DOE Appliance Rules are on the Back Burner, March 23 p 16

MECHANICAL PROPERTIES
Mechanical Alloying: It Works, June 10 p 84

MECHANICAL PROPERTIES DATA CENTER
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut Apr 27 p 57

MECHANICAL TECHNOLOGY INC.
Think Big on Energy Saving, Says Expert, May 13 p 15

GEORGE F. MECHLIN
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79

EDWARD MEESE
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19

MEETINGS AND CONVENTIONS
Material Handling Goes for Automation, Apr 27 p 12
Service Center Meeting Draws Large Crowd, June 1 p 60

RALPH MELE
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31

MELLON BANK
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53

MELTING
Powder Process Gives Higher Yield, May 4 p MP-19

WALTER MELTON
Steel Distributors Doing Better than Expected, March 11 p 71

MELTON STEEL CORP.
Steel Distributors Doing Better than Expected, March 11 p 71

MEMPHIS STATE UNIVERSITY
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65

MERG, INC.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

MERGERS
Buffalo Forge Finds Its 'White Knight', Feb 23 p 25
Big Deals Dominated 1980 Merger Picture, Feb 11 p 27
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Local Group Intercepts A-L Pass to Murchison, Jan 14 p 16
Makino Still Negotiating for Interest in Le Blond, Feb 23 p 25
Management in America—Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59
Merger Activity Surges in First Quarter, May 13 p 29
Seagram Makes a Bid for St. Joe Minerals, March 23 p 16
Shareholders to Decide Raybestos—AVC Deal, Jan 26 p 18

EDWARD G. MERK
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HERBERT MERLIN
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

JOSEPH MERRITT
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

MESSERSCHMIDT-BOLKOW-BLOHM
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66

MESTA MACHINE CO.
Anaconda Aluminum Boosts Rolling Capacity, by R.J. Regan, March 2 p MP-28

METAL CLEANING
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

METAL FINISHING
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

METAL FORMING
Wyman-Gordon Invests in Forming Technology, Feb 2 p MP-3

METALLURGY
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77
An Inside Look at Soviet Steelmaking, Feb 2 p MP-19
Kentucky Electric Likes Ladle Metallurgy, Apr 6 p 99
Mechanical Alloying: It Works, June 10 p 84
Powder Process Gives Higher Yield, May 4 p MP-19
Will Powder Rolling Take on Sheet Steel? by R.R. Irving, June 1 p MP-15

METAL POWDER INDUSTRIES FEDERATION
Will Powder Rolling Take On Sheet Steel? by R.R. Irving, June 1 p MP-15

METAL PROPERTIES COUNCIL
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

METALS
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79

METALS AND CERAMICS INFORMATION CENTER
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

METAL TRADERS, INC.
Copper Keeps Tight Reins on Production, Jan 14 p 62

METALWORKING INDUSTRY
Are Cooling Prices a Flash in the Pan or a New Trend? June 1 p 20
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Did the President's View of the Economy Puzzle You? by Gene Beaudet, May 13 p 5
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79
Is Inflation's Fast Pace Slowing Just a Bit? Apr 6 p 27
Is Slowed Pace of Orders Sounding a Warning Bleep? Jan 26 p 38
Is There Gold in Them Thar Valleys? by Gene Beaudet, Apr 6 p 5
Is This a Step Forward for Product Safety? by Gene Beaudet, June 10 p 7
It Was a Flip-Flop Year, But Orders Ended It on the Flip Side, Feb 23 p 54
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19

Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
OSHA Issues Industrial Noise Standards, Feb 2 p 16
Orders Continue on a Plateau, But at Least It is a High One, Apr 27 p 38
Orders: There Will be More Gloom before They Zoom, June 22 p 44
Price Fever Cools as Business Turns Cold, Feb 2 p 36
Slippage Doesn't Mean Orders are on Road for Recession City, March 23 p 48
The Space Shuttle Rockets Metalworking into the Future, by G.A. Weimer, March 11 p 22
A Time for Crossed Fingers—Price Cooling Signs Appear, May 4 p 61
Who Said Inflation was Easing Off? It's Up Again, March 11 p 38

METCON, INC.
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78

METCUT RESEARCH ASSOCIATES, INC.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

METHODS MACHINE TOOLS, INC.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

METRIC SYSTEM
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

METRON STEEL CORP.
Service Centers Wary of Plate Market, Feb 11 p 77

RUBEN F. METTLER
TRW Sets Its Goals in Non-Inflated Terms, May 4 p 33

HOWARD METZENBAUM
Clean Air Stretch—Out Awaits Move by House, Apr 27 p 11

MEXICO
'Margins are Going to Have to Improve,' National's Love, by G.J. McManus, May 4 p 37
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111

KENNETH A. MEYERS
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117

MICHIGAN SEAMLESS TUBE CO.
See: Quanex Corp.

MICROELECTRONICS AND INFORMATION SCIENCES CORP.
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

MIDDLE EAST
Middle East Man Buys into Kaiser Steel, Apr 27 p 85

MIDLAND-ROSS CORP.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

MIDREX CORP.
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

M. J. MIGHDOLL
Nonferrous Scrap Review, Jan 5 p 167

GARY L. MILLER
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

G. WILLIAM MILLER
Chrysler's Fate Hangs on Concessions, Loan, Jan 26 p 16

HERSHEL A. MILLER
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Detroit Will Remain the Biggest Market for American Machine Tool Builders, May 4 p 19
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

ROBERT MILLER
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

MILLER ELECTRIC MFG. CO.
Welding and Robotics, March 23 p A-1

H. MINDLIN
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

MINERALS
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Could the Synfuels Act Expand Mineral Output, May 4 p 21
Critical Minerals Issue Needs Control, Steel Says, June 10 p 21
Development Snags Hit Australian Minerals, June 22 p 115
Diecasters Join Debate on Strategic Materials, June 1 p 15
Mineral's Policy Coming, Says Interior's Watt, Feb 23 p 28
New Strategic Minerals Guidelines Proposed, June 22 p 20
Reagan Won't 'Lock Up' Resources, Watt Says, Apr 6 p 19
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35
U.S. Minerals Policy Starts to Evolve, Apr 15 p 13

MINE SAFETY APPLIANCE CO.
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

MINI MILLS
NKK Plans World Sales for Mini-Mill Facilities, Feb 2 p MP-5

MINING EQUIPMENT
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

MINING INDUSTRY
Coal Business Becomes Attractive Investment, Apr 6 p 98
Coal Labor Talks Progress Very Slowly, Feb 11 p 22
Government Regs Hurt Coal, Says DOE, March 2 p 23
Miners Approve Pact, End 72-Day Walkout, June 22 p 20
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52
Oil Money Can Finance Coal's Development, March 2 p 23
States Get More Control of Surface Mining, June 10 p 15

MINSTER MACHINE CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

MISCHER ENTERPRISES, INC.
Credit Managers Find More Interest in Their Work, by S.T. Parker, March 11 p 42

WILLIAM A. MITCHELL
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

MITE CORP.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

WALTER MOCHAL
Process Reduces Cost of Making Iron Castings, Apr 6 p MP-4

MODERN EQUIPMENT CO.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

MODICON DIV.
Computers and Manufacturing, June 22 p A-1

R. D. MOLLISON
Copper Prices See-Saw During this Quarter, May 13 p 150

MOLYBDENUM
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, by R.J. Regan, May 4 p 63

ROBERT MONAHAN
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

MONARCH MACHINE TOOL CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

MONEY MARKETS
Federal Borrowings Dent Money Market, Apr 27 p 32

MONSANTO CO.
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

DAVID MOON
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79

WILLIAM MOONEY
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

DAVID MOORE
Service Centers Remain Cautious about Stocks, Apr 15 p 98

GEOFFREY H. MOORE
Comparing Growth Rates of Major Nations, March 11 p 29
How's the Economy in Major Nations? May 13 p 29
Is There a Chance of Global Recession? Feb 11 p 27

JACK MORAN
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

HOWARD L. MORGAN
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

LEE L. MORGAN
Talking Business, June 10 p 47

R. E. MORGAN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

MORGAN ENGINEERING CO.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48
Service Centers in the Eighties, May 13 p A-1

MORGAN GUARANTEE TRUST CO.
Interest Rate Surge Takes Toll on Plant Spending, by J.D. Baxter, Jan 26 p 28

GEORGE B. MORRIS, JR.
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23

WILLIAM N. MORRIS, JR.
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39

DAN S. MORTENSEN
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

DONALD MOSHER
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

STEPHEN MOSS
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33

MOTCH & MERRYWEATHER, INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

SAM MOULTON
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63

RICK MOUREY
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

JOHN MUELLER
Kemp-Roth Bill Gets a New Lease on Life, by E.W. Bowers, Jan 14 p 28

JAMES W. MUIR
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

JOHN MUIR AND CO.
Where Will GM Get the $40 Billion?, May 25 p 13

J. J. MULHALL
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

PAT MULLEN
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

MULTINATIONAL INDUSTRIES
Fewer Multinationals are Based in U.S., May 4 p 33

GEORGE B. MUNROE
Copper Price, Demand Poised to Go Up, Feb 23 p 88
Copper Producers' Stocks Have Slimmed Down, Apr 6 p 98
Nonferrous Producers Talk about Oil's Lure, May 25 p 91

GEORGE MUNSON
Welding and Robotics, March 23 p A-1

CLINT W. MURCHISON, JR.
Local Group Intercepts A-L Pass to Murchison, Jan 14 p 16
Tippins In Murchison Out at Allegheny Ludlum, by G.J. McManus, March 2 p MP-24

JACK MURPHY
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

JACK MYLE
Service Center Orders are Perking Up, May 4 p 115

STAFAN MYSLIWIEC
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

Mc

JERRY MCAFEE
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

JOHN MCATEE
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

LLOYD MCBRIDE
Commerce to Probe Stainless Imports, Apr 27 p 8
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34

D. P. MCCAIN
Service Centers See Signs of Improvement, Apr 27 p 91

ARCHIE R. MCCARDELL
Downturn Brings Pay Cut for Managers at IH, Feb 2 p 19
Recovery Seen in Farm, Construction Equipment, March 11 p 12

JAMES MCCLURE
New Strategic Minerals Guidelines Proposed, June 22 p 20
Save Synfuels Corp., Urges Chairman Sawhill, Feb 11 p 20

JOHN MCCONNELL
Pickup in Flat-Rolled Gains Strength, May 25 p 95

JAMES MCCORD
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

PAUL MACCREADY
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79

T. J. MCCUISTION
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

A. C. MCDANIEL
Are Service Centers Getting Ready to Spend? May 13 p 152
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

M. LEE MCDANIEL
Welding and Robotics, March 23 p A-1

MCDERMOTT CO.
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

F. JAMES MCDONALD
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Is Industry Failing to Use Robots Enough? June 10 p 23
Where Will GM Get the $40 Billion? May 25 p 13

MCDONNELL DOUGLAS CORP.
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

KENTON E. MCELHATTAN
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

F. JACK MCGEE
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

WILLIAM MCGILL
Use Resources or Risk Global Chaos, Says CEQ, Feb 2 p 16

IAN MACGREGOR
Nonferrous Producers Talk about Oil's Lure, May 25 p 91

MCINNES STEEL CO.
Software Advances Pay Big Dividends, by A.M. Greene, June 1 p MP-10

KEITH E. MCKEE
Detroit Turns to Suppliers for Help in Manufacturing R&D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

JAMES F. MCKINLEY, JR.
Service Centers in the Eighties, May 13 p A-1

ERNEST MCLAUGHLIN
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

THOMAS MCLOUGHRY
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51

MCLOUTH STEEL CORP.
McLouth Sells J&L Its Stainless Plant, March 2 p 92
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

MACSTEEL DIV.
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

N

NCR CORP.
Software Advances Pay Big Dividends, by A.M. Greene, June 1 p MP-10
U.S. Data Processing Leadership Threatened, Apr 15 p 15

RALPH NADER
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

HIROSHI NAMIKAWA
U.S. Aluminum Exports to Japan Tripled, May 4 p 19

JOHN NARDONE
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
As the Space Shuttle Touched Down, Rockwell's Hopes Soared, May 4 p 12
The Space Shuttle Rockets Metalworking into the Future, by G.A. Weimer, March 11 p 22
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

NATIONAL AEROSPACE CO.
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

NATIONAL ASSN. OF ALUMINUM DISTRIBUTORS
Low Aluminum Demand Worries Producers, June 1 p 57

NATIONAL ASSN. OF CREDIT MANAGEMENT
Cash Flow Bind Irks Credit Managers, March 2 p 36
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22
High Interest Rates are Effect, Not Cause, Feb 2 p 27

NATIONAL ASSN. OF CREDIT MANAGERS
Credit Managers Find More Interest in Their Work, by S.T. Parker, March 11 p 42

NATIONAL ASSN. OF MANUFACTURERS
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
NAM Targets National Priorities Agenda, by E.W. Bowers, May 4 p 51

NATIONAL ASSN. OF METAL FINISHERS
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

NATIONAL ASSN. OF PURCHASING MANAGEMENT
A Time for Crossed Fingers—Price Cooling Signs Appear, May 4 p 61
"Who Said Inflation was Easing Off? It's Up Again, March 11 p 38

NATIONAL ASSN. OF RECYCLING INDUSTRIES
Copper Price, Demand Posed to Go Up, Feb 23 p 88
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89
Copper Producers Cut Output to Match Sales, May 4 p 113
Copper Strike Helped Importers to U.S., March 2 p 95
Nickel Supply/Demand Could Get Minor Blips, Apr 15 p 96
Nonferrous Scrap Review, Jan 5 p 167
Scrap Export Controls Silly, Says ISIS Head, May 4 p 114
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113

NATIONAL ASSN. OF SMALL BUSINESS INVESTMENT COMPANIES
Small Firms Finds Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

NATIONAL CAN CO.
Steelworkers, Can Companies Sign New Pact, March 2 p 20

NATIONAL COAL ASSN.
Coal Output and Use Will Rise this Year, Jan 14 p 19

NATIONAL COIL COATERS ASSN.
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

NATIONAL COMMISSION ON AIR QUALITY
...But the Clean Air Act Won't Get a Major Overhaul, March 23 p 15

NATIONAL ENVIRONMENT DEVELOPMENT ASSN.
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34

NATIONAL FLUID POWER ASSN.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19

NATIONAL LABOR RELATIONS BOARD
High Court Will Rule on Plant Closing Case, Feb 2 p 15

NATIONAL LOSS CONTROL SERVICE CORP.
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

NATIONAL MACHINE TOOL BUILDERS ASSN.
Don't Delay Capital Spending, NMBTA Urges, June 1 p 12
Machine Tool Backlog is Over $5 Billion, Feb 11 p 15
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Machine Tool Builders Warned of Imports Threat, Apr 6 p 16
Machine Tool Orders Dipped in April, June 10 p 13
Machine Tool Orders Rose 27 Pct in March, May 13 p 12
Machine Tool Orders Slow, Shipments Up, Apr 15 p 15
Machine Tool Orders Turn Soft in January, March 11 p 15
Machine Tool Shipments Glow in November, Jan 14 p 13
Trading Legislation Sent to the House, May 4 p 21
U.S. Machine Tool Builders Off-Balance Overseas, by E.W. Bowers, March 11 p 36
Washington's Ready to Support U.S. Exporters, by E.W. Bowers, May 25 p 39

NATIONAL MACHINERY, INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

NATIONAL MINE SERVICE CO.
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

NATIONAL PATENTS COUNCIL
America Needs a Couple of Thomas Alva Edisons, by S.T. Parker, June 1 p 24

NATIONAL SAFETY COUNCIL
Raising the Profile of Factory Safety, March 2 p 81

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

NATIONAL STEEL CORP.
EPA Eases Steel Industry's Air Pollution Deadlines..., March 23 p 15
'Margins are Going to Have to Improve,' National's Love, by G.J. McManus, May 4 p 37
National Steel Starts New Slab Caster, Apr 6 p MP-3
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5
Pickup in Flat-Rolled Gains Strength, May 25 p 95
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Senses a New Era Dawning, June 10 p 13
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

NATIONAL STEEL SERVICE CENTER, INC.
Pickup in Flat-Rolled Gains Strength, May 25 p 95
Service Centers in the Eighties, May 13 p A-1

NATIONAL SUPPLY CO.
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28
Oil Drilling to Continue at Hectic Pace in '81, Jan 14 p 15

NATIONAL TOOLING AND MACHINING ASSN.
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
NTMA Chief Sees Slow Pace for 1981, Apr 6 p 15
NTMA Courts Congress to Get Some Action, May 25 p 19
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

NATIONAL VENTURE CAPITAL ASSN.
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

NATIONAL WELDING SUPPLY ASSN.
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

NATURAL GAS
High Court Bans State Natural Gas Tax, June 10 p 15
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19

NAVAL SHIPS
First Lady Christens First Cruiser, June 1 p 17

B. M. NECKRICH
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

NEENAH FOUNDRY CO.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

C. F. NELSON
Atlantic Puts Money in Continuous Casting, by G.J. McManus, March 2 p MP-26

CHARLES NELSON
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

ROY M. NELSON
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

RICHARD M. NEMERSON
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

NESTLE CO.
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28

THE NETHERLANDS
A Tale of Adhesively-Bonded Aircraft, by R.R. Irving, May 4 p 87

NEW ENGLAND MACHINE DIV.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

NEWMONT MINING CORP.
Copper Output Cut in Line with Demand, March 11 p 65

NEW YORK CITY
Steel Goes for the Big Apple, by Gene Beaudet, May 25 p 7

NEW YORK OFFICE OF DEVELOPMENT PLANNING
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

C. M. NI
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

NICKEL
Nickel Supply/Demand Could Get Minor Blips, Apr 15 p 96
Nickel Worries About Early Double-Dip, Jan 14 p 58
Nickel's Supply-Demand Roller Coaster Gets Costlier, by Roger Lopata, March 11 p 30
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49

WILLIAM L. NICOLAY
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

BART F. NIEMEYER
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

EIVEN K. NILSEN
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

NIPPON KOKAN
NKK Plans World Sales for Mini-Mills Facilities, Feb 2 p MP-5
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

NIPPON STEEL CORP.
Japanese Steelmakers Replace 'QC' with 'JK', May 13 p 149
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

TETSUO NIWA
Yamazaki—Another Japanese Heavyweight Enters the U.S. Market, by R.J. Larsen, June 10 p 43

P. M. NIXON
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23

NOISE
OSHA Issues Industrial Noise Standards, Feb 2 p 16

NONDESTRUCTIVE TESTING
Don't Pour Money Down the Drain, by Roger Lopata, March 2 p 76
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

NONFERROUS INDUSTRY
Nonferrous Producers Ask R & D for Energy and Emissions, by R.J. Regan Feb 2 p 49
Nonferrous Producers Talk about Oil's Lure, May 25 p 91
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Steel—Just Fair '80; Nonferrous Mixed, May 4 p 27

NONFERROUS METALS
Annual Statistical Review—Metal Prices and Production as of December 31, 1980, Jan 5 p 103
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Nonferrous Scrap Review, Jan 5 p 167
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Steel—Just Fair '80; Nonferrous Mixed, May 4 p 27
U.S. Steel Plots Its Strategy for the '80s, by G.J. McManus, Jan 5 p MP-16

NOOTER CORP.
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

NORTH AMERICAN MFG. CO.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

NORTHROP CORP.
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

NORTON CO.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
Welding and Robotics, March 23 p A-1

JANET NORWOOD
Jobless Rate Steady, March 2 p 43

ROBERT NUCKOLS
Are Service Centers Getting Ready to Spend? May 13 p 152
Service Centers-Some Suppliers Think Upturn is Underway, Jan 26 p 78

NUCLEAR POWER
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77

NUCOR CORP.
Service Centers in the Eighties, May 13 p A-1
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

H. F. NUETZEL
W&S Grinding Has Its Nose to the Grindstone, Apr 27 p 15

NUMERICAL CONTROL
Allen-Bradley's New CNC Seeks World Market, June 22 p 22
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
Computers and Manufacturing, June 22 p A-1
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Europeans Worried by Rising Tide of Japanese Machine Tool Imports, Apr 15 p 18
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
NC: A Big Turn for the Better, March 2 p 90
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51
White-Sundstrand is On the Move Again, by R.J. Larsen, Feb 2 p 57
Will Materials Change Shape of Tomorrow's Machine Tool Industry, by Iron Age Staff, June 22 p 87

NUMERIDEX, INC.
Computers and Manufacturing, June 22 p A-1

O

OAKITE PRODUCTS, INC.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

JOHN OBER
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

OBITUARIES
P.D. Block Jr., Retired Inland Steel CEO Dies, June 22 p 17

OCCIDENTAL SHALE OIL INC.
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

OCCUPATIONAL SAFETY AND HEALTH AMDINISTRATION
Donovan Favors 'Self-Inspection' of Workplace Hazards, Apr 15 p 13
Foundrymen Draw a Bead on Legislative Targets; EPA, OSHA in the Bull's-Eye, March 2 p 15
New OSHA Chief Got 48 OSHA Citations, March 2 p 16
OSHA Issues Industrial Noise Standards, Feb 2 p 16
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

ULF ODEBO
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

JOSEPH ODORCICH
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23

OFFICE OF MANAGEMENT AND BUDGET
Carter's Budget Will Get Blitzed by Reagan, Feb 2 p 15
Mine Workers Oppose Cutting Synfuels Funds, March 2 p 15
New OMB Head Reveals Reagan Economic Plan, Feb 11 p 15
Mr. Reagan Appoints Regulatory Task Force, Feb 11 p 15

OFFICE OF U.S. TRADE REPRESENTATIVE
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47

OFFSHORE DRILLING
Offshore Work Needs Fair Political Winds, May 25 p 14

OGDEN CORP.
Buffalo Forge Finds Its 'White Knight', Feb 23 p 25

FRED O'GREEN
Litton is Well-Armed for Defense Buildup, May 4 p 16

OIL DRILLING
Are Thieves Riding High in the Oil Country? by S.T. Parker, May 4 p 45
Oil Drilling to Continue at Hectic Pace in '81, Jan 14 p 15

OILDYNE, INC.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

OILGEAR CO.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

OIL SHALE
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

OIL SKIMMERS, INC.
Kaiser Steel Turns Waste Oil to Cash, June 1 p MP-1

BERNARD J. O'KEEFE
It's Back to College for CEO's—This Time to Teach, by J.D. Baxter, March 23 p 44

OKUMA MACHINERY WORKS LTD.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

WILLIAM K. OLEWINSKI
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

OLIN CORP.
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89

OMICRON, INC
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus; and R.E. Harvey, Jan 26 p 63

HELEN M. ONDIK
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

O'NEAL STEEL, INC.
Service Center Meeting Draws Large Crowd, June 1 p 60

JOHN E. O'NEIL
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

ONSRUD DIV.
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66

OPENHEARTH FURNACES
Submerged Injections Applied to Openhearths, May 4 p MP-3

ORMET CORP.
Ormet Installs New Bag Filter System, March 2 p MP-5

LAWRENCE S. O'ROURKE
Cabot Wagers $13 Million on Aluminum's Alloy Needs, by R.J. Regan, June 1 p MP-17

D. H. ORTS
New Galvanized Product Assumes Dual Roles, by J.J. Obrzut, Apr 6 p 71

OSAKA KIKO CO. LTD.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

JAMES O'TOOLE
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79

WILLIAM G. OUCHI
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

BLAINE N. OUIMETTE
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

DEBRA OWENS
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

OXY METAL INDUSTRIES CORP.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

OXYGEN
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

P

C. E. PFEIFER, JR.
Soft Aluminum Market Brings on Discounting, March 23 p 149

CARL S. PFEIFFER
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

PACIFIC PRESS & SHEAR CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

GORDON G. PALMER
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

J. M. PALMER, JR.
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

PALMER-SHILE CO.
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78

EDMUND PANKAU
Are Thieves Riding High in the Oil Country? by S.T. Parker, May 4 p 45

PARKER DIV.
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

PARKER HANNIFIN CORP.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

G. W. PARKS
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

PATENTS
America Needs a Couple of Thomas Alva Edisons, by S.T. Parker, June 1 p 24

ROBERT R. PATTERSON
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

R. K. PATTON
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

W. P. PAVELAK
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

PAXSON MACHINE CO.
Are Service Centers Getting Ready to Spend? May 13 p 152
Service Centers Aim to Offer More Service, June 22 p 120
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78
Service Centers Wary of Plate Market, Feb 11 p 77

ROBERT PEABODY
...But the Clean Air Act Won't Get a Major Overhaul, March 23 p 15
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
EPA Eases Steel Industry's Air Pollution Deadlines..., March 23 p 15

PECHINEY UGINE KUHLMANN
Aluminum Distributors Keep Inventories, March 2 p 95
Aluminum Rallies for Another Big Year, Jan 14 p 58
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113

PECKOVER'S LTD.
Service Centers See Signs of Improvement, Apr 27 p 91

PELLETS
New Reduction Process Improves Iron Pellets, Apr 6 p MP-3
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23

PENNSYLVANIA ENGINEERING CORP.
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

PENNSYLVANIA STATE UNIVERSITY
Raising the Profile of Factory Safety, March 2 p 81

PENNWALT CORP.
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57

PERKIN-ELMER CO.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

JERRY PERKINS
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66

PERSONNEL
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39

MARVIN PESSES
Flexibility Can Help the Buying Decis. on, by P.J. Cathey, Apr 15 p SP-22

PESSES CO.
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22

ROBERT M. PETERS
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33

DONALD E. PETERSON
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13

HENRY B. PETERSON
How Service Centers View the New Year, Jan 5 p 168

PETROLEUM INDUSTRY
Are Thieves Riding High in the Oil Country? by S.T. Parker, May 4 p 45
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
The Boom in Energy The Oil Industry Suppliers Take Off, by G.J. McManus and and S.T. Parker, March 23 p 29
Capital Spending Will Go Up Again in '81, Apr 27 p 32
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, by R.J. Regan, May 4 p 63
First Quarter Report Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Kaiser Steel Turns Waste Oil to Cash, June 1 p MP-1
Looking Ahead hn '81 The Issues and People of 1981, Jan 5 p 19
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23
Nonferrous Producers Talk about Oil's Lure, May 25 p 91
Offshore Work Needs Fair Political Winds, May 25 p 14
Oil Drilling to Continue at Hectic Pace in '81, Jan 14 p 15
Oil Money Can Finance Coal's Development, March 2 p 23
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

ROBERT PEW
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

PHELPS DODGE CORP.
Copper Price, Demand Poised to Go Up, Feb 23 p 88
Copper Producers' Stocks Have Slimmed Down, Apr 6 p 98
Copper Supply/Demand Stay Well Balanced, June 10 p 101
Nonferrous Producers Ask R & D for Energy and Emissions Answers, by R.J. Regan, Feb 2 p 49
Nonferrous Producers Talk about Oil's Lure, May 25 p 91
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55
Steel Just Fair '80; Nonferrous Mixed, May 4 p 27

DONALD PHILLIPS
Nickel's Supply-Demand Roller Coaster Gets Costlier, by Roger Lopata, March 11 p 30

PHOENIX STEEL CORP.
Service Centers in the Eighties, May 13 p A-1

PHOTOGRAPHY
Don't Pour Money Down the Drain, by Roger Lopata, March 2 p 76

PICKANDS MATHER & CO.
Ore Carrier Named After Republic Head, Jan 5 p MP-5

PIG IRON
Annual Statistical Review—Metal Prices and Production as of December 31, 1980, Jan 5 p 103

J. L. PIKE
Service Centers Remain Skeptical of 1981, Jan 14 p 64

PIPE
Regulations are Crimping Pipelines, Exec Says, March 23 p 20

PIPELINES
Coal-Slurry Pipeline Could Start by 1985, Apr 27 p 12
Regulations are Crimping Pipelines, Exec Says, March 23 p 20

PITTSBURGH FORGING CO.
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

PITTSBURGH TUBE CO.
Service Centers in the Eighties, May 13 p A-1

RUSSELL E. PLANITZER
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

PLANNING ECONOMICS GROUP
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

MORTON B. PLANT
Scrap Export Controls Silly, Says ISIS Head, May 4 p 114

PLASTICS
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

PLASTICS TECHNICAL EVALUATION CENTER
Materials Selection: How the Computer Helps Reduce Failure, by J.J. Obrzut, Apr 27 p 57

PLATE, SHEET AND STRIP
Bethlehem and USS Part on Size of Price Hike, Feb 2 p 64
If You Can't Buy Them, Build Them, Says Fabricator, by Roger Lopata, June 10 p 83
Mechanical Alloying: It Works, June 10 p 84
Service Centers Wary of Plate Market, Feb 11 p 77
Steel Summary: Auto Firms' Buy More Sheet, Apr 27 p 82

PLI-O-SEAL MFG. CO.
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57

POLISH-AMERICAN MACHINERY CORP.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

HANS POLK
Credit Managers Find More Interest in Their Work, by S.T. Parker, March 11 p 42

BARRY POLLARD
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

POLLUTION CONTROL SERVICES, INC.
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5

POSTAGE MACHINE CO.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

POWDERED METALS
Mechanical Alloying: It Works, June 10 p 84
Powder Process Gives Higher Yield, May 4 p MP-19
Will Powder Rolling Take On Sheet Steel? by R.R. Irving, June 1 p MP-15

DONALD PRASKY
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

STANLEY PRATT
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

PRATT & WHITNEY AIRCRAFT DIV.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

PRECISION STEEL WAREHOUSE, INC.
Service Centers in the Eighties, May 13 p A-1

PREDICASTS, INC.
An Inside Look at Soviet Steelmaking, Feb 2 p MP-19
Mining Equipment Maker Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

PRESSES
If You Can't Buy Them, Build Them, Says Fabricator, by Roger Lopata, June 10 p 83
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

PRESSURE TECHNOLOGY, INC.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

FREDERICO PRICE
Direct Reduction Stirs Confrontation between Two Competing Companies, Jan 5 p MP-3

PRICES
Annual Statistical Review Metal Prices and Production as of December 31, 1980, Jan 5 p 103
Are Cooling Prices a Flash in the Pan or a New Trend? June 1 p 20
Bethlehem and USS Part on Size of Price Hike, Feb 2 p 64
Bethlehem's Prices May Set Pattern, June 1 p 57
Copper Price, Demand Poised to Go Up, Feb 23 p 88
Copper Prices See-Saw During this Quarter, May 13 p 150
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89
Kaiser's Price Hikes Startle Industry, May 13 p 149
Price Fever Cools as Business Turns Cold, Feb 2 p 36
Prices Cool Somewhat, Feb 2 p 41
Silver Has Lost Its Speculative Luster, March 11 p 66
Steel Summary: Price Hikes Test Market, May 25 p 91
A Time for Crossed Fingers Price Cooling Signs Appear, May 4 p 61
USS Launches General $10 Steel Price Hike, May 25 p 14
Who Said Inflation was Easing Off? It's Up Again, March 11 p 38

PAUL PRIKOS
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

PRIKOS & BECKER TOOL CO.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

PRIME COMPUTER, INC.
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

PRIVACY
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39

PROBE INTERNATIONAL, INC.
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

PRODUCT LIABILITY
Foundrymen Draw a Bead on Legislative Targets; EPA, OSHA in the Bull's-Eye, March 2 p 15
Is This a Step Forward for Product Safety? by Gene Beaudet, June 10 p 7
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
Materials Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48
Product Liability: How to Prevent It, Feb 2 p 23
Risk Retention Bill Likely to be Enacted, Apr 6 p 15

PRODUCTION
Capacity Rate Rises, March 11 p 35
Employee Incentives Plus New Technology Equal, Productivity, by K.W. Bennett, Feb 2 p 43
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79
NAM Targets National Priorities Agenda, by E.W. Bowers, May 4 p 51
Output Winds Down, March 11 p 35
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31

PRODUCTION MACHINERY CORP.
New Mill Starts to Roll for Eastern Stainless, by R.R. Irving, March 2 p MP-21

PROGRAMMABLE CONTROLLERS
Computers and Manufacturing, June 22 p A-1
System Alpha Packs Dual Control Punch, by A.M. Greene, Feb 11 p 64

PUBLIC AFFAIRS
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

PUBLIC AFFAIRS COUNCIL
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

PURCHASING
Copper Pricing Causes Confusion to Buyers, Feb 23 p 89
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22
Orders Grow Slimmer, Jan 26 p 36
A Time for Crossed Fingers Price Cooling Signs Appear, May 4 p 61
U.S., Japan to Free Government Purchasing, Jan 14 p 15

PYRONICS, INC.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

Q

QUALITY CONTROL
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33
Japanese Steelmakers Replace "QC" with "JK", May 13 p 149
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

QUANEX CORP.
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

QUIMICA HOOKER, S. A.
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

R

MICHAEL RADEKE
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

RADIOGRAPHY
Don't Pour Money Down the Drain, by Roger Lopata, March 2 p 76

RAIL CARS
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Poor Rail Car Ordering Hurts Steelmakers, March 2 p 25
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95

RAILROADS
Budd Co. Entering Freight Car Market, March 2 p 25
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29

RAILS
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95

JORGE RAMOS
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111

PHILIP RANNO
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

RANSBURG CORP.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

RAPISTAN DIV.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

RAYBESTOS-MANHATTAN INC.
Shareholders to Decide Raybestos-AVC Deal, Jan 26 p 18

THOMAS RAYMOND
It's Back to College for CEO's—This Time to Teach, by J.D. Baxter, March 23 p 44

RAYMOND CORP.
Service Center Orders are Perking Up, May 4 p 115

RAYTHEON CORP.
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

NANCY REAGAN
First Lady Christens First Cruiser, June 1 p 17

RONALD REAGAN
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Is this Our Last Chance? by Gene Beaudet, March 2 p 7
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
Mr. Reagan Appoints Regulatory Task Force, Feb 11 p 15
Seaga Meets Reagan, Congressional Panels, Feb 11 p 73
What Will Make the Reagan Program Work? by Gene Beaudet, Feb 11 p 5
Will Reagan Bend on Tax Cut Plan? June 10 p 16

JAMES D. REDMOND
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93

RON REEVE
Welding is Falling into Robots' Clutches, Apr 27 p 11

DONALD REGAN
Battle Lines Drawn for Tax Cut Debate, May 25 p 13
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
Control Money Supply, Says Treasury's Regan, Feb 23 p 23
Reagan Aides, Volcker Differ on Tax Cut Timing, Feb 11 p 13
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

BERNARD F. REILAND
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

RELIANCE STEEL & ALUMINUM CO.
Service Centers Remain Skeptical of 1981, Jan 14 p 64
Service Centers See Signs of Improvement, Apr 27 p 91

REMMELE ENGINEERING CO.
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

S. E. RENNER
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

RENSSELAER POLYTECHNIC INSTITUTE
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

REPUBLIC STEEL CORP.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
EPA Eases Steel Industry's Air Pollution Deadlines..., March 23 p 15
Ore Carrier Named After Republic Head, Jan 5 p MP-5
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Republic's De Lancey Sees a Capital Spending Surge, by G.A. Weimer, May 25 p 36
Steel Imports Dipped in a Bit in 1980, Feb 23 p 88

RESEARCH AND DEVELOPMENT
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
R & D Spending Could Hit $68.6 Billion this Year, Jan 26 p 76

RESEARCH CORP. OF NEW ENGLAND
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

RESEARCH TRIANGLE INSTITUTE
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

RESISTANCE WELDING
Homopolar Welding: Industry's Interested, by R.R. Irving, March 2 p 73

RESOLUTIONS
A Resolution You Can't Refuse, by Gene Beaudet, Jan 5 p 7

RETAIL INDUSTRY
Retail Sales Flat, May 4 p 49
Retail Sales Slip, June 10 p 58

REPUBLIC STEEL CORP.
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5
Republic Steel Plans Continuous Slab Caster, June 1 p MP-2
Steel Senses a New Era Dawning, June 10 p 13
Who Says We'll Blow the Money? by Gene Beaudet, June 22 p 7

JAMES REUTTEN
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

REXNORD, INC.
Material Handling Goes for Automation, Apr 27 p 12
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

REYCAN RESEARCH LTD.
Aluminum Foil Gets Fine Tuning, Apr 6 p MP-4
GE Receives Order for Aluminum Complex, Apr 6 p MP-4

DAVID P. REYNOLDS
Kaiser's Price Hikes Startle Industry, May 13 p 149

REYNOLDS ALUMINUM CO.
Aluminum Foil Gets Fine Tuning, Apr 6 p MP-4
GE Receives Order for Aluminum Complex, Apr 6 p MP-4

REYNOLDS METALS CO.
Kaiser's Price Hikes Startle Industry, May 13 p 149
Low Aluminum Demand Worries Producers, June 1 p 57
Reynolds Metals Expand Reclamation Plant, June 1 p MP-1
Service Centers in the Eighties, May 13 p A-1
Slack Aluminum Demand Hikes Producers' Stocks, May 4 p 113
Transport May be Big Aluminum Market, Apr 6 p 96

DAVID RICHARDS
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

JOHN RICHARDSON
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

RICKERT INDUSTRIAL, INC.
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22

HARRY J. RIFFE
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

W. O. RILEY
Atlantic Puts Money in Continuous Casting, by G.J. McManus, March 2 p MP-26

WILLIAM O. RILEY
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
Service Centers in the Eighties, May 13 p A-1

RIO BLANCO OIL SHALE CO.
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

THOMAS RITTER
Service Centers in the Eighties, May 13 p A-1

FRED A. RIVES
Service Centers in the Eighties, May 13 p A-1

RICHARD RIZZO
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

ROBBINS & MEYERS, INC.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

C. A. ROBERTS CO.
Service Centers in the Eighties, May 13 p A-1

CLYDE ROBERTS
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

EDWARD B. ROBERTS
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65

JOHN H. ROBERTS
Service Centers in the Eighties, May 13 p A-1

T. R. ROBERTS
New Galvanized Product Assumes Dual Roles, by J.J. Obrzut, Apr 6 p 71

JAMES J. ROBINSON
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

ROBOT INSTITUTE OF AMERICA
Is Industry Failing to Use Robots Enough? June 10 p 23

ROBOTS
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96
General Numeric Hopes to Double Control Sales, Apr 27 p 15
Is Industry Failing to Use Robots Enough? June 10 p 23
Welding and Robotics, March 23 p A-1
Welding is Falling into Robots' Clutches, Apr 27 p 11
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

ROCKWELL INTERNATIONAL CORP.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
As the Space Shuttle Touched Down, Rockwell's Hopes Soared, May 4 p 12
Rockwell Positioned for Defense Buildup, March 2 p 16
The Space Shuttle Rocket Metalworking into the Future, by G.A. Weimer, March 11 p 22
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

D. M. RODERICK
Coal Business Becomes Attractive Investment, Apr 6 p 98
Coal Strike Won't Hurt Steel Output, May 25 p 91
Congress Hears Roderick Praise Reagan's Plan, March 11 p 12
EPA Regulations Eased for U.S. Steel, Feb 2 p MP-5
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
Orders Belies Double Dip, Says USS's Roderick, Apr 6 p 96
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Trigger Prices are Still Alive, Says Baldrige; Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
U.S. Steel Plots Its Strategy for the '80s, by G.J. McManus, Jan 5 p MP-16

PAUL R. ROEDEL
Beaver Hands Roedel CEO Slot at Carpenter, March 2 p 92
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

WILLIAM R. ROESCH
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
U.S. Steel Plots Its Strategy for the '80s, by G.J. McManus, Jan 5 p MP-16

JOSEPH ROKOP
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7

ROKOP CORP.
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7

ROLLING
Anaconda Aluminum Boosts Rolling Capacity, by R.J. Regan, March 2 p MP-28
Will Powder Rolling Take On Sheet Steel? by R.R. Irving, June 1 p MP-15

PETER L. ROLLINS
It's Back to College for CEO'S—This Time to Teach, by J.D. Baxter, March 23 p 44

ANTHONY J. ROMANOVICH
Inland Sees Shipments Totalling 94 Million Tons, Apr 27 p 82

JOHN RONDOT
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39

JAMES ROOT
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

ROBERT B. ROSE
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

ROBERT ROSELIEP
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

ROSE METAL INDUSTRIES, INC.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

GARY ROSENBOOM
Service Centers in the Eighties, May 13 p A-1

IRVING ROSSI
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7

DAN ROSTENKOWSKI
Battle Lines Drawn for Tax Cut Debate, May 25 p 13
Will Reagan Bend on Tax Cut Plan? June 10 p 16

WILLIAM V. ROTH
Kemp-Roth Bill Gets a New Lease on Life, by E.W. Bowers, Jan 14 p 28

ROWE MACHINERY CO.
Are Service Centers Getting Ready to Spend? May 13 p 152

ROWE MACHINERY & MFG. CO., INC.
Service Centers Aim to Offer More Service, June 22 p 120

MARVIN RUBMAN
Service Center Meeting Draws Large Crowd, June 1 p 60

RUESCH MACHINE CO.
Are Service Centers Getting Ready to Spend? May 13 p 152

JOSEPH C. RUNKLE
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

GREGORY B. RUSSELL
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

RUTGERS UNIVERSITY
How's the Economy in Major Nations? May 13 p 29
Is There a Chance of Global Recession? Feb 11 p 27

LEO J. RYAN
Big Oil Dents Its Hook for Nontuel Minerals, by R.J. Regan, Apr 27 p 34

JOSEPH T. RYERSON & SON, INC.
How Service Centers View the New Year, Jan 5 p 168
Service Centers in the Eighties, May 13 p A-1
Service Centers Wary of Plate Market, Feb 11 p 77
Training Skilled Workers is Growing Priority, Apr 6 p 101

S

SKF INDUSTRIES, INC.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Service Centers in the Eighties, May 13 p A-1

SPS TECHNOLOGIES, INC.
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

SRI INTERNATIONAL
Is There Trouble Brewing in California's Silicon Valley? by C.T. Post, May 13 p 131

WILLIAM SAAL
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

RICHARD S. SABO
Welding and Robotics, March 23 p A-1

SAFETY
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33
Donovan Favors 'Self-Inspection' of Workplace Hazards, Apr 15 p 13
Is This a Step Forward for Product Safety? by Gene Beaudet, June 10 p 7
Raising the Profile of Factory Safety, March 2 p 81
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127
Welding and Robotics, March 23 p A-1

ST. JOE LEAD CO.
Lead Producers Need More Battery Sales, June 1 p 58

ST. JOE MINERALS CORP.
Seagram Makes a Bid for St. Joe Minerals, March 23 p 16

SALARIES
Downturn Brings Pay Cut for Managers at IH, Feb 2 p 19
Income Creeps Up, Feb 11 p 36
Look for Double-Digit Wage Hikes in '81, Feb 2 p 27

C. SALOMON
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

SALOMON BROS.
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
High Interest Rates Don't Curb Expansion, June 1 p 29
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

FRED H. SAMUELSON
Welding and Robotics, March 23 p A-1

DARREL SANDERSON
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78

SANDVIK, INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Sandvik Scales Up Its Welding Output, June 1 p 17

SANDWICH CONSTRUCTION
A Tale of Adhesively-Bonded Aircraft, by R.R. Irving, May 4 p 87

A. F. SAROSDY
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

R. W. SATTERFIELD
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

JOHN SAWHILL
Save Synfuels Corp., Urges Chairman Sawhill, Feb 11 p 20
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

JIT SAXENA
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

SCENARIOS
Ouch! It's Time for the Profit Center Plan for Next Year! May 4 p 69

DAVID SCHAD
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

D. W. SCHALL
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

ERIC SCHELLIN
America Needs a Couple of Thomas Alva Edisons, by S.T. Parker, June 1 p 24

E. G. SCHEMPP
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

SCHILL STEEL CO.
Service Centers Wary of Plate Market, Feb 11 p 77

DAVID SCHMIDT
How Service Centers View the New Year, Jan 5 p 168

ROLAND W. SCHMITT
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63

SCHRADER BELLOWS DIV.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

DAVID SCHROM
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

RICHARD SCHUBERT
'81 Looms as a Year of Change of Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23

ROGER O. SCHULTZ
W&S Grinding Has Its Nose to the Grindstone, Apr 27 p 15

DONALD SCHWALM
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G. J. McManus and R.E. Harvey, Jan 26 p 63
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

GAIL G. SCHWARTZ
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51

SCIAKY BROS., INC.
Welding and Robotics, March 23 p A-1

SCOT FORGE CO.
Service Centers in the Eighties, May 13 p A-1

CHARLES H. SCOTT
Service Centers in the Eighties, May 13 p A-1

SCOVILL MFG. CO.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

SCRAP
Annual Statistical Review—Metal Prices and Production as of December 31, 1980, Jan 5 p 103
Area Scrap Reports, Jan 5 p 165
Nonferrous Scrap Review, Jan 5 p 167
Scrap Export Controls Silly, ISIS Head, May 4 p 114
Scrap Had Fair '80; Outlook for this Year Uncertain, Jan 5 p 165
Scrap Tramp Element Problem Gets Study, March 2 p MP-6

SCREW MACHINES
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

SCRUBBERS
Ormet Installs New Bag Filter System, March 2 p MP-5

EDWARD SEAGA
Seaga Meets Reagan, Congressional Panels, Feb 11 p 73

SEAGRAM CO., LTD.
Seagram Makes a Bid for St. Joe Minerals, March 23 p 16

SEAMLESS TUBING
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
More Capacity for Tubular Products Comes on Stream, March 23 p 33
Wean Builds Seamless Tube Mill for CF&I, March 2 p MP-6

SECURITIES
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

SECURITIES AND EXCHANGE COMMISSION
Interest Rate Surge Takes Toll on Plant Spending, by J.D. Baxter, Jan 26 p 28
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

STANLEY SEEDS
Service Centers in the Eighties, May 13 p A-1
Welding and Robotics, March 23 p A-1

PAUL SEELBACH
U.S. Machine Tool Set to Expand Its Operations, Feb 2 p 19

L. WILLIAM SEIDMAN
Special Issue Groups Will Challenge Management in '80s, by P.J. Cathey, Feb 23 p 55

SEMICONDUCTOR CIRCUITS, INC.
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57

SENSING SYSTEMS
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96

SENTRY INSURANCE CO.
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39

SERVICE CENTERS
Aluminum Exports Rose 300 Pct in '80, March 2 p 103
Are Service Centers Getting Ready to Spend? May 13 p 152
Canadian Centers See Shipments Fall, Apr 15 p 98
Copper Distributors Mildly Optimistic, March 23 p 153
How Service Centers View the New Year, Jan 5 p 168
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92
Pickup in Flat-Rolled Gains Strength, May 25 p 95
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
SSCI Sees Some Gain in '81—But Slim, Feb 2 p 69
Service Center Meeting Draws Large Crowd, June 1 p 60
Service Center Orders are Perking Up, May 4 p 115
Service Centers Aim to Offer More Service, June 22 p 120
Service Centers in the Eighties, May 13 p A-1
Service Centers Remain Cautious about Stocks, Apr 15 p 98
Service Centers Remain Skeptical of 1981, Jan 14 p 64
Service Centers See Signs of Improvement, Apr 27 p 91
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78
Service Centers Warmed by February Shipments, Apr 6 p 101
Service Centers Wary of Plate Market, Feb 11 p 77
Shipments are Good News for Service Centers, June 22 p 120
Shipments are Moving Up at Good Pace, May 13 p 152
Steel Distributors Doing Better than Expected, March 11 p 71
Training Skilled Workers is Growing Priority, Apr 6 p 101

SCOTT SHANKS
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

E. J. SHAPIRO
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

IRVING S. SHAPIRO
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

ANDREW G. SHARKEY
SSCI Sees Some Gains in '81—But Slim, Feb 2 p 69
Service Center Meeting Draws Large Crowd, June 1 p 60
Service Centers in the Eighties, May 13 p A-1
Service Centers See Signs of Improvement, Apr 27 p 91
Service Centers Warmed by February Shipments, Apr 6 p 101
Shipments are Good News for Service Centers, June 22 p 120
Shipments are Moving Up at Good Pace, May 13 p 152
Steel Distributors Doing Better than Expected, March 11 p 71

TANIE S. SHARKEY
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

SHARON STEEL CORP.
Steel Producers in Search of Hot Connection, by G.J. McManus, Jan 5 p MP-7

J. R. SHARPE
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

DANIEL D. SHEARER
Is There Trouble Brewing in California's Silicon Valley? by C.T. Post, May 13 p 131

THOMAS R. SHEARER
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

SHEARSON, LOEB & RHOADES, INC.
More Capacity for Tubular Products Comes on Stream, March 23 p 33

SHEET, PLATE AND STRIP
Pickup in Flat-Rolled Gains Strength, May 25 p 95

SHELL OIL CO.
Offshore Work Needs Fair Political Winds, May 25 p 14

THOMAS P. SHIFO
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
White-Sundstrand in On the Move Again, by R.J. Larsen, Feb 2 p 57

SHIN NIPPON KOKI LTD.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

SHIPBUILDERS COUNCIL OF AMERICA
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

SHIPBUILDING
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J.McManus, Apr 15 p 40
First Lady Christens First Cruiser, June 1 p 17
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Ore Carrier Named After Republic Head, Jan 5 p MP-5
Sun Gives Up the Ship: Will Fabricate, Jan 26 p 21

CLAUDE SHIRAI
Japanese Autos Could Face Trade Restraints, March 11 p 15

FREDERICK SHIRK
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Computers and Manufacturing, June 22 p A-1

WILLIAM SHULHOF
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

SIDERMEX S. A. DE CV
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

SIDNEY STEEL CORP.
Submerged Injections Applied to Open-hearths, May 4 p MP-3

NICHOLAS P. SIKICH
Welding and Robotics, March 23 p A-1

WILLIAM L. SILBER
High Interest Rates are Effect, Not Cause, Feb 2 p 27

SILVER
Don't Pour Money Down the Drain, by Roger Lopata, March 2 p 76
Silver Has Lost Its Speculative Luster, March 11 p 66

SILVER USERS ASSN.
Silver Has Lost Its Speculative Luster, March 11 p 66

TOMISLAVA SIMIC
Big Deals Dominated 1980 Merger Picture, Feb 11 p 27
Merger Activity Surges in First Quarter, May 13 p 29

R. P. SIMMONS
Local Group Intercepts A-L Pass to Murchison, Jan 14 p 16

MICHAEL SIMPSON
Service Centers Remain Skeptical of 1981, Jan 14 p 64

SKILL TOOL & DIE CORP.
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

JOHN SKOBERG
Service Centers in the Eighties, May 13 p A-1

SLABS
National Steel Starts New Slab Caster, Apr 6 p MP-3
Republic Steel Plans Continuous Slab Caster, June 1 p MP-2

SLAG
Submerged Injections Applied to Open-hearths, May 4 p MP-3

RAY SLACK
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

SLOAN SCHOOL OF MANAGEMENT
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65

EDWARD E. SLOWTER
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

BELFORD A. SMALL
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22

SMALL BUSINESS
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Flexibility Can Help the Buying Decision, by P.J. Cathey, Apr 15 p SP-22
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p Sp-3
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

SMALL BUSINESS ADMINISTRATION
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

HRATCH SMERJIAN
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

ROLLO SMETHERS
Construction Equipment Takes to Air, March 2 p 81

ALAN M. SMITH
Service Centers in the Eighties, May 13 p A-1

AUSTIN SMITH
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

CRAIG R. SMITH
Don't Delay Capital Spending, NMBTA Urges, June 1 p 12
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

D. N. SMITH
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

DAVID SMITH STEEL CO.
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

DONALD D. SMITH
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

DAVID SMITH, SR.
Aluminum Exports Rose 300 Pct in '80, March 2 p 103

EUGENE SMITH
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

GEORGE SMITH
Service Center Meeting Draws Large Crowd, June 1 p 60

I. ROBERT SMITH
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

ROGER B. SMITH
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Detroit's Still Trying to Rev Up Its Engine, by B.H. Berry and G.A. Weimer, Feb 11 p 39
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Talking Business, March 2 p 49
UAW Says Chrysler Was Unique Case, June 1 p 12
Where Will GM Get the $40 Billion? May 25 p 13

SMITH & CAFFREY STEEL CORP.
Service Centers See Signs of Improvement, Apr 27 p 91

W. S. SNEATH
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53

J. A. SNYDER
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

SOCIETE EUROPEAN DE PROPULSION
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

SOCIETE MECANIQUE MAGNETIQUE
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

SOCIETY FOR THE ADVANCEMENT OF MATERIAL AND PROCESS ENGINEERING
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

SOCIETY OF AUTOMOTIVE ENGINEERS
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

SOCIETY OF MANUFACTURING ENGINEERS
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

JOHN SODEN
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28

PETER SOHLDEN
Small Plants Respond to Quality Demands, by R.E. Harvey, Apr 15 p SP-27

ALBERT T. SOMMERS
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33

STEVEN SORCHY
Welding and Robotics, March 23 p A-1

SOUTH BEND LATHE, INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

SOUTHWIRE CO.
Continuous Casting Continues to Evolve New Techniques, by G.J. McManus, Feb 2 p MP-7

RICHARD N. SPANN
Computers and Manufacturing, June 22 p A-1

SPECIALTY STEEL
Commerce to Monitor Specialty Steel Imports, Jan 26 p 16
Commerce to Probe Stainless Imports, Apr 27 p 8

SPECIALTY STEEL INDUSTRY OF THE U.S.
Commerce to Probe Stainless Imports, Apr 27 p 8

STEWART R. SPECTOR
Aluminum Output Hit Record in January, March 11 p 69

SPEEDFAM CORP.
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

GEORGE SPEER
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33

SPERRY VICKERS DIV.
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

GUS SPETH
Use Resources or Risk Global Chaos, Says CEQ, Feb 2 p 16

SPINDLES
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

E. W. SPITZIG
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

SPOT WELDING
Help is on the Way for Spot Welding, by R.R. Irving, May 25 p 87

HAROLD SPRIGGS
Are Service Centers Getting Ready to Spend? May 13 p 152
Service Centers Aim to Offer More Service, June 22 p 120

ROBERT L. SPROAT
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

SQUARE D CO.
Computers and Manufacturing, June 22 p A-1

ELMER STAATS
Defense Billions—How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21

JOSEPH R. STADELMAN
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48
Service Centers in the Eighties, May 13 p A-1

ROBERT STAFFORD
Tense Atmosphere Prevails for Clean Air Act Debate, E.W. Bowers, Feb 11 p 34

STAINLESS STEEL
Commerce to Probe Stainless Imports, Apr 27 p 8
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93
McLouth Sells J&L Its Stainless Plant, March 2 p 92
New Mill Starts to Roll for Eastern Stainless, by R.R. Irving, March 2 p MP-21

STAMPINGS
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Metalworking 1981 Annual Forecast Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55

STANDARD FUEL ENGINEERING CO.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

STANDARD OIL CO. OF CALIFORNIA
Big Oil Dents Its Hooks for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Coal Business Becomes Attractive Investment, Apr 6 p 98
Nonferrous Producers Talk about Oil's Lure, May 25 p 91

STANDARD OIL CO. OF OHIO
Big Oil Dents Its Hook for Nonfuel Minerals, by R.J. Regan, Apr 27 p 34
Coal Business Becomes Attractive Investment, Apr 6 p 98
Mining Equipment Makers still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

STANDARDS
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

STANFORD RESEARCH INSTITUTE
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

GREGORY V. STARICH
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

STATIC ELECTRICITY
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

STATISTICS
Annual Statistical Review—Metal Prices and Production as of December 31, 1980, Jan 5 p 103
Did Poor Statistics Warp Economic Policy? June 22 p 37
Steel—Just Fair '80; Nonferrous Mixed, May 4 p 27

Annual Statistical Review—Metal Prices and Production as of December 31, 1980, Jan 5 p 103
Bethlehem and USS Part on Size of Price Hike, Feb 2 p 64
Bethlehem's Prices May Set Pattern, June 1 p 57
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Inland is Looking to Do More Things, by G.J. McManus, May 13 p 32
Inland Sees Shipments Totalling 94 Million Tons, Apr 27 p 82
'Margins are Going to Have to Improve,' National's Love, by G.J. McManus, May 4 p 37
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
New at the Helm: Wilson Likes Lukens, May 13 p 36
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
Service Centers Remain Cautious about Stocks, Apr 15 p 98
Service Centers Warmed by February Shipments, Apr 6 p 101
Steel Distributors Doing Better than Expected, March 11 p 71
Steel Imports Dipped a Bit in 1980, Feb 23 p 88
Steel—Just Fair '80; Nonferrous Mixed, May 4 p 27
Steel Output Could Total 1 Billion Tons by 1990, by P.J. Cathey, Jan 5 p MP-27
Steel Output of IISI Countries Still Down, June 10 p 104
Steel Summary: Auto Firms Buy More Sheet, Apr 27 p 82
USS Launches General $10 Steel Price Hike, May 25 p 14
U.S. Steel Plots Its Strategy for the '80s, by G.J. McManus, Jan 5 p MP-16
"We Are What We Are," Bethlehem's Trautlein, by G.J. McManus, Apr 15 p 43
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

STEELCASE, INC.
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

STEEL CO. OF CANADA, LTD.
Steel Suvey Shows Pause in Expansion, May 4 p MP-1

STEEL INDUSTRY
Am I Wrong to Let this Get My Goat? by Gene Beaudet, Feb 2 p 7
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Critical Minerals Issue Needs Control, Steel Says, June 10 p 21
EPA Eases Steel Industry's Air Pollution Deadlines. . . . March 23 p 15
Help Steel, Says GAO, and It Can Compete, Jan 26 p 15
Inland is Looking to Do More Things, by G.J. McManus, May 13 p 32
New at the Helm: Wilson Likes Lukens, May 13 p 36
Orders Belie Double Dip, Says USS's Roderick, Apr 6 p 96
Poor Rail Car Ordering Hurts Steelmakers, March 2 p 25
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Republic's De Lancey Sees a Capital Spending Surge, by G.A. Weimer, May 25 p 36
Steel Execs Seek Better Enforcement of TPM, Feb 23 p 25
Steel Gets Three-Year Breather on Clean Air, by E.W. Bowers, June 10 p 21
Steel Goes for the Big Apple, by Gene Beaudet, May 25 p 7
Steel—Just Fair '80; Nonferrous Mixed, May 4 p 27
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Senses a New Era Dawning, June 10 p 13
Steel Summary: Auto Firms Buy More Sheet, Apr 27 p 82
Steel Summary: Hope Keeps Growing Stronger, May 4 p 113
Steel Summary: It's Summer Slowdown Time, June 1 p 57
Steel Summary: Little Change Seen With TPM, Jan 26 p 76
Steel Summary: March to Test Firmness, Feb 2 p 64
Steel Summary: Mill Order Rates Recover, June 10 p 101
Steel Summary: Mills Up Shipping Estimate, Apr 15 p 95
Steel Summary: More Prospects of Profit, March 2 p 92
Steel Summary: New Orders Up Sharply, Feb 11 p 71
Steel Summary: No Signs of a Slowdown, Apr 6 p 96
Steel Summary: Order Lag has Arrived, June 22 p 115
Steel Summary: Orders Dipped at Year-End, Jan 14 p 58
Steel Summary: Pace of Orders Still Strong, March 23 p 149
Steel Summary: Price Hikes Test Market, May 25 p 91
Steel Summary: Sales Continue Stong, March 11 p 65
Steel Summary: Stable Market in First Half, Feb 23 p 88
Steel Summary: Strong Level of Shipments, May 13 p 149
Steel Still Battered by Operating Costs of Pollution Control, by G.J. McManus, May 4 p MP-5
Steel Survey Shows Pause in Expansion, May 4 p W-1
Steel Took Bruising Fall in 1980, March 11 p 65
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23
Talks Take the Pulse of Steel Industry, Feb 2 p MP-3
Trigger Prices Expected to Highlight Talks, June 1 p 58
Trigger Prices are Still Alive, Says Baldrige; Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
Trigger Prices Will Remain, Baldrige Says, March 23 p 17
"We Are What We Are," Bethlehem's Trautlein, by G.J. McManus, Apr 15 p 43

STEEL MILLS
Coal Strike Won't Hurt Steel Output, May 25 p 91
New Mill Starts to Roll for Eastern Stainless, by R.R. Irving, March 2 p MP-21
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Summary: Mill Order Rates Recover, June 10 p 101
Steel Summary: Mills Up Shipping Estimate, Apr 15 p 95

STEEL SERVICE CENTER INSTITUTE
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92
Service Center Meeting Draws Large Crowd, June 1 p 60
Service Centers in the Eighties, May 13 p A-1
SSCI Hears Varied Steel Supply Forecasts, June 10 p 111
SSCI Sees Some Gains in '81—But Slim, Feb 2 p 69
Service Centers See Signs of Improvement, Apr 27 p 91
Service Centers Warmed by February Shipments, Apr 6 p 101
Shipments are Good News for Service Centers, June 22 p 120
Shipments are Moving Up at Good Pace, May 13 p 152
Steel Distributors Doing Better than Expected, March 11 p 71

STEELMAKING
An Inside Look at Soviet Steelmaking, Feb 2 p MP-19
Inlands No. 7 Start-Up More than Pushing the Right Buttons, by G.J. McManus, March 2 p MP-7
Japanese Steelmakers Replace 'QC' with 'JK', May 13 p 149
New Galvanized Product Assumes Dual Roles, by J.J. Obrzut, Apr 6 p 71
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Timken to Construct Steelmaking Facility, June 1 p MP-1
"We Are What We Are," Bethlehem's Trautlein, by G.J. McManus, Apr 15 p 43

HERBERT STEIN
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

MORRIS STEINBERG
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

JAMES STELLAR
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61

STEPHENS-ADAMSON, INC.
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

MARC STEPP
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45

ROBERT STERNE
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

CARLOS BEECHE STEVENSON
Mexico's Taking the Well-Oiled Route to Industrialization, by S.T. Parker, Apr 27 p 23

CHARLES W. STEWART
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24

DONALD E. STINGEL
Ex-Im Head Campaigns Against Budget Cuts, May 13 p 11

GEORGE A. STINSON
EPA Eases Steel Industry's Air Pollution Deadlines. . . . March 23 p 15

DAVID STOCKMAN
Carter's Budget Will Get Blitzed by Reagan, Feb 2 p 15
Mine Workers Oppose Cutting Synfuels Funds, March 2 p 15
Mr. Reagan Appoints Regulatory Task Force, Feb 11 p 15
New OMB Head Reveals Reagan Economic Plan, Feb 11 p 15
Reagan Aides, Volcker Differ on Tax Cut Timing, Feb 11 p 13

ROBERT L. STOECKLIN
What's Beyond the Plastic and Glue in Today's Aircraft, by C.T. Post, March 23 p 133

STRATEGIC MATERIALS
Critical Minerals Issue Needs Control, Steel Says, June 10 p 21
Diecasters Join Debate on Strategic Materials, June 1 p 15
New Strategic Minerals Guidelines Proposed, June 22 p 20

FRANK A. STRATTON
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

LEVI STRAUSS & CO.
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43

NORMAN STRAUSS
Inflation Accounting Shows Hollow Economy, March 2 p 36

SIMON D. STRAUSS
Copper Price, Demand Poised to Go Up, Feb 23 p 88
Could the Synfuels Act Expand Mineral Output? May 4 p 21

STRESS CORROSION
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93

STRUCTURAL STEEL
Bethlehem and USS Part on Size of Price Hike, Feb 2 p 64

WALTER STULTS
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

SUMITOMO METAL INDUSTRIES LTD.
New Reduction Process Improves Iron Pellets, Apr 6 p MP-3
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

SUMMIT/DANA CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

SUN CO.
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

SUN SHIP CO.
Sun Gives Up the Ship; Will Fabricate, Jan 26 p 21

SUPERALLOYS
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77

SUPERCONDUCTIVITY
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79

SURVEYS
Steel Survey Shows Pause in Expansion, May 4 p W-1

J. A. SUTTON
Welding and Robotics, March 23 p A-1

WILLIAM L. SWAGER
Scrap Tramp Element Problem Gets Study, March 2 p MP-6

JOHN D. SWETISH
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24

SWISSWAY, INC.
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57

SYNFUELS CORP.
Save Synfuels Corp., Urges Chairman Sawhill, Feb 11 p 20
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

SYNTHETIC FUELS
Could the Synfuels Act Expand Mineral Output? May 4 p 21
Mine Workers Oppose Cutting Synfuels Funds, March 2 p 15
Save Synfuels Corp., Urges Chairman Sawhill, Feb 11 p 20
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

T

TMI-FOREST, INC.
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66

TRW INC.
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43
TRW Sets Its Goals in Non-Inflated Terms, May 4 p 33
U.S. Machine Tool Builders Off-Balance Overseas, by E.W. Bowers, March 11 p 36

TSAI-SPECTOR RESEARCH ASSOCIATES
Aluminum Output Hit Record in January, March 11 p 69

TACONITE
Steelmakers Faced with Surplus Iron Ore, by G.J. McManus, May 4 p MP-23

ANDREW J. TAKACS
DOE Appliance Rules are on the Back Burner, March 23 p 16

R. J. TALLEY
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53

ROGER E. TAMERZ
Middle East Man Buys into Kaiser Steel, Apr 27 p 85

TANKS (ORDNANCE)
Defense Billions—How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21

TARIFFS
Japanese Autos Could Face Trade Restraints, March 11 p 15
Protectionism is on the Rise, GE Exec Warns, Jan 14 p 16

TAR SANDS
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

TAXES
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47

Battle Lines Drawn for Tax Cut Debate, May 25 p 13
Business Displeased with Tax Compromises, June 22 p 15
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Congress Hears Roderick Praise Reagan's Plan, March 11 p 12
Don't Delay Capital Spending, NMBTA Urges, June 1 p 12
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
High Court Bans State Natural Gas Tax, June 10 p 15
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
Kemp-Roth Bill Gets a New Lease on Life, by E.W. Bowers, Jan 14 p 28
Looking Ahead in '81—The Issues and People of 1981, Jan 5 p 19
Patience! Patience! by Gene Beaudet, Jan 14 p 7
Reagan Aides, Volcker Differ on Tax Cut Timing, Feb 11 p 13
Sorting Things Out: A Short Q & A, by Gene Beaudet, Apr 15 p 7
Valve Makers Urged to Support 10-5-3 Bills, Apr 6 p 19
Well, Before They Bring It Up, by Gene Beaudet, March 23 p 5
Who Says We'll Blow the Money? by Gene Beaudet, June 22 p 7
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33
Will Reagan Bend on Tax Cut Plan? June 10 p 16

TAYLOR MACHINE WORKS, INC.
Service Center Orders are Perking Up, May 4 p 115

TAYLOR-WINFIELD CORP.
Welding and Robotics, March 23 p A-1

TECHMET CORP.
Driver-Harris Bridges Casting Methods Gap, March 2 p MP-5
Techmet Introduces New Casting Method, Apr 6 p MP-3

TECHNICA-GUSS (WEST GERMANY)
West Germans Market General Motors Process, Feb 2 p MP-3

TECHNICAL INFORMATION
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57

TECHNIWELD CO.
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

TECHNOLOGY TRANSFER
The Space Shuttle Rockets Metalworking into the Future, by G.A. Weimer, March 11 p 22

TEC TORCH CO., INC.
Welding and Robotics, March 23 p A-1

ROBERT TEECE
Service Center Orders are Perking Up, May 4 p 115

TELEDYNE ALLVAC
Teledyne Allvac Plans $80 Million Expansion, June 22 p 115

GERHARD W. TEMPEL
Help is on the Way for Spot Welding, by R.R. Irving, May 25 p 87

TESTING AND INSPECTION
Don't Pour Money Down the Drain, by Roger Lopata, March 2 p 76

TESTING & INSPECTION
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96

TEXAS GAS TRANSMISSION SERVICES DIV.
Regulations are Crimping Pipelines, Exec Says, March 23 p 20

TEXAS INSTRUMENTS, INC.
Keeping Good Managers Isn't Difficult But It Demands Planning, by P.J. Cathey, March 23 p 117

TEXASGULF, INC.
Copper Prices See-Saw During this Quarter, May 13 p 150

TEXTRON CORP.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79

THEFT
Are Thieves Riding High in the Oil Country? by S.T. Parker, May 4 p 45

ERIC THEIS
Are Service Centers Getting Ready to Spend? May 13 p 152

THERMAL TRANSFER CORP.
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

JOHN THOMA
Service Centers in the Eighties, May 13 p A-1

ROBERT A. THOMAS
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-13

WALTER THOMAS
Service Centers Wary of Plate Market, Feb 11 p 77

W. BRUCE THOMAS
U.S. Steel Plots Its Strategy for the '80s, by G.J. McManus, Jan 5 p MP-16

JACK E. THOMPSON
Copper Output Cut in Line with Demand, March 11 p 65

THOMPSON-CSF AVIONICS DIV.
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, by A.M. Greene, May 25 p 65

ARTHUR THOMSON
U.S. Machine Tool Builders Off-Balance Overseas, by E.W. Bowers, March 11 p 36

3M CO.
Grinding Disc: New Kid on the Block is a Very Tough Customer! Feb 23 p 82
Industry Must Cope with Changing Winds of Innovation, by R.E. Harvey, Apr 6 p 65
Service Centers in the Eighties, May 13 p A-1
Welding and Robotics, March 23 p A-1

CHARLES B TILSON
Service Centers in the Eighties, May 13 p A-1

TIMKEN CO.
Timken to Construct Steelmaking Facility, June 1 p MP-1

W. R. TIMKEN, JR.
Timken to Construct Steelmaking Facility, June 1 p MP-1

TINPLATE
'Margins are Going to Have to Improve,' National's Love, by G.J. McManus, May 4 p 37

VIJAY A. TIPNIS
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

TIPNIS ASSOCIATES, INC.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

GEORGE W. TIPPINS
Local Group Intercepts A-L Pass to Murchison, Jan 14 p 16
Tippins In Murchison Out at Allegheny Ludlum, by G.J. McManus, March 2 p MP-24

TIPPINS MACHINERY CO., INC.
Local Group Intercepts A-L Pass to Murchison, Jan 14 p 16
Tippins In Murchison Out at Allegheny Ludlum, by G.J. McManus, March 2 p MP-24

TITANIUM
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Has Metalworking Overlooked the Virtues of Titamium, by C.T. Post, Feb 11 p 58

JIRI TLUSTY
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66

JAMES TODD
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

ALVIN TOFFLER
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

TOOL AND DIE INSTITUTE OF CHICAGO
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

TOSHIBA MACHINE CO. LTD.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

TOWNSEND DIV.
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

TOXIC SUBSTANCES
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
Software Keeps Track of Workers Exposed to Toxic Materials, by K.R. Moldt, May 13 p 127

TOYAMA MACHINE WORKS, LTD.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

TRACTORS
Off-Road Equipment Mired in Sales Slump, March 2 p 17

TRAINING PROGRAMS
It's Back to College for CEO's—This Time to Teach, by J.D. Baxter, March 23 p 44
It's Back to School for Workers at GM, by G.A. Weimer, June 22 p 83
Putting Flexibility into Benefit Plans Increases Options, by K.R. Moldt, Apr 27 p 43
Reaching Out to the Workers, by P.J. Cathey, June 10 p 61
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowrs, June 22 p 51
Training Skilled Workers is Growing Priority, Apr 6 p 101

TRANSPORTATION
Frame Cracks Plague Grumman's Buses, Feb 2 p 21
Transport May be Big Aluminum Market, Apr 6 p 96

DONALD H. TRAUTLEIN
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
"We Are What We Are," Bethlehem's Trautlein, by G.J. McManus, Apr 15 p 43

TRIGGER PRICES
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Steel Execs Seek Better Enforcement of TPM, Feb 23 p 25
Steel Goes for the Big Apple, by Gene Beaudet, May 25 p 7
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Senses a New Era Dawning, June 10 p 13
Steel Summary: Little Change Seen with TPM, Jan 26 p 76
Steel Summary: Mills Up Shipping Estimate, Apr 15 p 95
Trigger Prices Expected to Highlight Talks, June 1 p 58
Trigger Prices are Still Alive, Says Baldrige; Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
Trigger Prices Will Remain, Baldrige Says, March 23 p 17

JACK A. TRILLING
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

ALEXANDER TROWBRIDGE
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
NAM Targets National Priorities Agenda, by E.W. Bowers, May 4 p 51

ROY TROWBRIDGE
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

TRUCKS
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119

TUBING
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
More Capacity for Tubular Products Comes on Stream, March 23 p 33
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

TUBING MILLS
Wean Builds Seamless Tube Mill for CF&I, March 2 p MP-6

J. M. TULL METALS CO.
Service Center Meeting Draws Large Crowd, June 1 p 60
Service Centers See Signs of Improvement, Apr 27 p 91
Service Centers Wary of Plate Market, Feb 11 p 77

KEITH TUMULTY
Managing Parts Inventory Demands Close Scrutiny, by K.W. Bennett, May 25 p 52

MANUEL C. TURCHAN
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

TURCHAN, INC.
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

WILLIAM TURNER
Regulations are Crimping Pipelines, Exec Says, March 23 p 20

JAMES TURNER III
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

TURNING MACHINES
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

U

UOP INC
Will Powder Rolling Take On Sheet Steel? by R.R. Irving, June 1 p MP-15

USI-CLEARING
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

USS ENGINEERS AND CONSULTANTS, INC.
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5

U.S.S.R.
An Inside Look at Soviet Steelmaking, Feb 2 p MP-19
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119

U.S. BUREAU OF LABOR STATISTICS
Jobless Rate Steady, March 2 p 43
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

U.S. BUREAU OF MINES
Aluminum Distributors Keep Inventories, March 2 p 95
Transport May be Big Aluminum Market, Apr 6 p 96

U.S. CHAMBER OF COMMERCE
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11

U.S. COMPTROLLER GENERAL
Defense Billions—How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21

U.S. DEPARTMENT OF COMMERCE
Business Displeased with Tax Compromises, June 22 p 15
Can U.S. Automakers Dig Up $12 Billion to Fund Their Modernization Programs? May 13 p 8
Commerce to Monitor Specialty Steel Imports, Jan 26 p 16

Commerce to Probe Stainless Imports, Apr 27 p 8
Equipment is Better, But Its Productivity Falls—How Come? by J.D. Baxter, June 22 p 33
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Housing Starts Sag, Feb 11 p 36
Income Creeps Up, Feb 11 p 36
Is Slowed Pace of Orders Sounding a Warning Bleep? Jan 26 p 38
Orders Continue on a Plateau, But at Least It is a High One, Apr 27 p 38
Orders Grow Slimmer, Jan 26 p 36
Retail Sales Flat, May 4 p 49
Retail Sales Slip, June 10 p 58
Trade Deficit Lost Weight in March, May 13 p 12
Trade Deficit Went from Worse to Bad in 1980, Feb 23 p 28
Trigger Prices are Still Alive, Says Baldrige; Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
Trigger Prices Will Remain, Baldrige Says, March 23 p 17
Washington's Ready to Support U.S. Exporter's, by E.W. Bowers, May 25 p 39
White House Backing Export Initiative, Apr 27 p 8

U.S. DEPARTMENT OF DEFENSE
Could the Synfuels Act Expand Mineral Output? May 4 p 21
Defense Billions—How Much Money is Being Wasted? by E.W. Bowers, June 1 p 21
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

U.S. DEPARTMENT OF ENERGY
Alloys Pass Corrosion Tests, March 2 p 81
DOE Appliance Rules are on the Back Burner, March 23 p 16
Government Regs Hurt Coal, Says DOE, March 2 p 23
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

U.S. DEPARTMENT OF THE INTERIOR
Cabinet Nominees Vow 'Common Sense' Policies, Jan 14 p 13
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, by R.J. Regan, May 4 p 63
Mineral's Policy Coming, Says Interior's Watt, Feb 23 p 28
Reagan Won't 'Lock Up' Resources, Watt Says, Apr 6 p 19
States Get More Control of Surface Mining, June 10 p 15
U.S. Aluminum Exports to Japan Tripled, May 4 p 19
U.S. Minerals Policy Starts to Evolve, Apr 15 p 13

U.S. DEPARTMENT OF LABOR
Cabinet Nominees Vow 'Common Sense' Policies, Jan 14 p 13
Donovan Favors 'Self-Inspection' of Workplace Hazards, Apr 15 p 13
Jobs Remain Scarce, May 4 p 49
Prices Cool—Somewhat, Feb 2 p 41
Skilled Manpower Shortage: A Crisis Facing Defense, by E.W. Bowers, June 22 p 51
Who Said Inflation was Easing Off? It's Up Again, March 11 p 38

U.S. DEPARTMENT OF TRANSPORTATION
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Japanese Autos Could Face Trade Restraints, March 11 p 15

U.S. DEPARTMENT OF THE TREASURY
Battle Lines Drawn for the Tax Cut Debate, May 25 p 13
Business Gets a Break Under Reagan's Economic Plan, March 11 p 11
Control Money Supply, Says Treasury's Regan, Feb 23 p 23
Reagan Aides, Volcker Differ on Tax Cut Timing, Feb 11 p 13
Reagan Will Rely on Deregulation and Japanese Restraint to Ease Auto Problems, Apr 6 p 13
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

U.S. INDUSTRIES, INC.
Service Centers Remain Cautious about Stocks, Apr 15 p 98

U.S. INTERNAL REVENUE SERVICE
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24

U.S. MACHINE TOOL TASK FORCE
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

U.S. NATIONAL BUREAU OF STANDARDS
Materials Selection: How the Computer Helps Reduce Failures, by J.J. Obrzut, Apr 27 p 57
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

U.S. NAVAL AIR SYSTEMS COMMAND
Has Metalworking Overlooked the Virtues of Titanium, by C.T. Post, Feb 11 p 58

U.S. PATENT AND TRADEMARK OFFICE
America Needs a Couple of Thomas Alva Edisons, by S.T. Parker, June 1 p 24

U.S. STEEL CORP.
Bethlehem and USS Part on Size of Price Hike, Feb 2 p 64
The Boom in Energy—The Oil Industry Supplies Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
Can Industry Protect Its Leaders from Tragic Death? by S.T. Parker, Feb 2 p 28
Coal Business Becomes Attractive Investment, Apr 6 p 98
Coal Strike Won't Hurt Steel Output, May 25 p 91
Congress Hears Roderick Praise Reagan's Plan, March 11 p 12
Critical Minerals Issue Needs Control, Steel Says, June 10 p 21
EPA Regulations Eased for U.S. Steel, Feb 2 p MP-5
IRS is Slow to Credit Industry for Energy Saving, by E.W. Bowers, Jan 26 p 24
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
Orders Belie Double Dip, Says USS's Roderick, Apr 6 p 96
Oxygen Steelmaking Moves to a More Active State, by G.J. McManus, June 1 p MP-5
Profit '80: Steel Down, Nonferrous Hurt, by G.J. McManus and R.J. Regan, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Steel—Just Fair '80; Nonferrous Mixed, May 4 p 27
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
Steel Summary: More Prospects of Profit, March 2 p 92
Trigger Prices are Still Alive, Says Baldrige; Alive, But Not Well, Says U.S. Steel's Roderick, June 22 p 15
USS Launches General $10 Steel Price Hike, May 25 p 14
U.S. Steel Beginning to See a Turnaround, by G.J. McManus, Apr 27 p 29
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95
U.S. Steel Plots It Strategy for the '80s, by G.J. McManus, Jan 5 p MP-16
U.S. Steel Returning to Centralized Structure, Jan 14 p 62
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

U.S. STEEL SUPPLY DIV.
How Service Centers View the New Year, Jan 5 p 168

UDDEHOLM STEEL CORP.
Duplex Stainless Keeps Corrosion in Check, by R.R. Irving, May 4 p 93
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

ULRICH OF ILLINOIS, INC.
Service Centers in the Eighties, May 13 p A-1

UNIMATION, INC.
GM Wants Machines to See, Hear and Feel Their Work, by A.M. Greene, May 4 p 96
Welding and Robotics, March 23 p A-1
Welding is Falling into Robots' Clutches, Apr 27 p 11

UNION CARBIDE CORP.
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Welding and Robotics, March 23 p A-1

UNITED AIR SPECIALISTS, INC.
Welding and Robotics, March 23 p A-1

UNITED AUTO WORKERS
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Chrysler Keeps Up Its Fight for Survival, by B.H. Berry, March 2 p 45
Chrysler's Road to Recovery Gets Rockier, Jan 14 p 13
Downturn Brings Pay Cut for Managers at IH, Feb 2 p 19
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
UAW Says Chrysler Was Unique Case, June 1 p 12

UNITED KINGDOM
Comparing Growth Rates of Major Nations, March 11 p 29

UNITED MINE WORKERS OF AMERICA
Coal Labor Talks Progress Very Slowly, Feb 11 p 22
Mine Workers Okay New Three-Year Pact, Apr 6 p 15
Mine Workers Oppose Cutting Synfuels Funds, March 2 p 15
Miners Approve Pact, End 72-Day Walkout, June 22 p 20
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23

UNITED STATES MACHINE TOOLS, INC.
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13
U.S. Machine Tool Set to Expand Its Operations, Feb 2 p 19

UNITED STEELWORKERS OF AMERICA
Cavalcade of News—Metalworking Stories of 1980, Jan 5 p 119
Commerce to Probe Stainless Imports, Apr 27 p 8
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23
Steelworkers, Can Companies Sign New Pact, March 2 p 20
Talks Take the Pulse of Steel Industry, Feb 2 p MP-3
Tense Atmosphere Prevails for Clean Air Act Debate, by E.W. Bowers, Feb 11 p 34
U.S. Aluminum Exports to Japan Tripled, May 4 p 19

UNITED TECHNOLOGIES CORP.
Advanced Materials Keep Pushing Aircraft Higher and Higher, by C.T. Post, May 4 p 79
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40
CAD/CAM Shapes Up as Billion Dollar Market, by A.M. Greene, Feb 23 p 63
Control Systems for Small Manufacturers, by A.M. Greene, Apr 15 p SP-31
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

UNIVERSAL CYCLOPS SPECIALTY STEEL DIV.
Powder Process Gives Higher Yield, May 4 p MP-19
Service Centers in the Eighties, May 13 p A-1

UNIVERSAL FOUNDRY CO.
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

UNIVERSAL STEEL CO.
Firms Cut Their Risks with Self-Insurance, by K.W. Bennett, Feb 2 p 33

UNIVERSITY OF CALIFORNIA
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

UNIVERSITY OF CONNECTICUT
Is Japan Doing a Better Job Managing Inventory? by R.E. Harvey, June 1 p 38

UNIVERSITY OF MICHIGAN
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

UNIVERSITY OF SOUTHERN CALIFORNIA
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79

UNIVERSITY OF TEXAS
Homopolar Welding: Industry's Interested, by R.R. Irving, March 2 p 73

UNIVERSITY OF WISCONSIN
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

URANIUM
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

WALLY G. UREN
It's Back to School for Workers at GM, by G.A. Weimer, June 22 p 83

V

V & O PRESS CO., INC.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

VALERON CORP.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

VALMONT ENERGY SYSTEMS, INC.
Welding and Robotics, March 23 p A-1
Service Centers in the Eighties, May 13 p A-1

VALVE MANUFACTURERS ASSN.
Valve Makers Urged to Support 10-5-3 Bills, Apr 6 p 19

VALVES
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Fluid Power Gets Set for Growth over the Long Haul, by K.W. Bennett, March 2 p 61
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Valve Makers Urged to Support 10-5-3 Bills, Apr 6 p 19

GISE VAN BAREN
Service Centers in the Eighties, May 13 p A-1
Service Centers Remain Skeptical of 1981, Jan 14 p 64

JOHN VANDENKIEBOOM
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

RICHARD VAN HORNE
Anaconda Aluminum Boosts Rolling Capacity, by R.J. Regan, March 2 p MP-28

RONALD L. VAN METER
Service Centers in the Eighties, May 13 p A-1

VAN PELT CORP.
Midwest Centers Lead an Early '81 Recovery, Feb 23 p 92

VAPOR DEGREASING
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

ROGER J. VAUGHAN
Is There Trouble Brewing in California's Silicon Valley, by C.T. Post, May 13 p 131

JOHN R. VELLA
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

VERSON ALLSTEEL PRESS CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Unique Furnace Helps Verson Save Energy, May 4 p MP-1
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

WILLIAM VICKROY
Computers and Manufacturing, June 22 p A-1

OWEN J. VIERGUTZ
Detroit Turns to Suppliers for Help in Manufacturing R & D, by G.J. McManus and R.E. Harvey, Jan 26 p 63

JURIS VIKMANIS
Computers and Manufacturing, June 22 p A-1
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

PHILLIPE VILLERS
Welding is Falling into Robots' Clutches, Apr 27 p 11

VOEST-ALPINE AG
Steel Survey Shows Pause in Expansion, May 4 p MP-1

PAUL A. VOLCKER
Can Reagan Make Tight Money Work? by G.J. McManus, Apr 15 p 53
Interest Rate Surge Takes Toll on Plant Spending, by J.D. Baxter, Jan 26 p 28
Reagan Aides, Volcker Differ on Tax Cut Timing, Feb 11 p 13

LARRY VON MOLL
Makino Still Negotiating for Interest in Le Blond, Feb 23 p 25

BRANIMIR VON TURKOVICH
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

VOUGHT CORP.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

W

M. WADDELL & TOWNE, INC.
Talks Take the Pulse of Steel Industry, Feb 2 p MP-3

WAGES AND PRICES
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79
Look for Double-Digit Wage Hikes in '81, Feb 2 p 27

BRUCE R. WAGGONER
Metal Cleaning: It's the Degree of Cleaning that Counts, by J.J. Obrzut, June 1 p 43

RODNEY C. WAINWRIGHT
Welding and Robotics, March 23 p A-1

TIMOTHY WAKEFIELD
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

WAYNE L. WALKER
Keeping Good Managers Isn't Difficult—But It Demands Planning, by P.J. Cathey, March 23 p 117

ANDREW WALSH
Alloy 718: The Workhorse of Superalloys, by R.R. Irving, June 10 p 77

MICHAEL WALSH
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29

WANG LABORATORIES, INC.
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

T. J. WARDEN
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

DOUGLAS WARNER
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

WARNER & SWASEY CO.
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119
Don't Delay Capital Spending NMBTA Urges, June 1 p 12
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
W&S Grinding Has Its Nose to the Grindstone, Apr 27 p 15
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

W. F. WARREN
Service Centers See Signs of Improvement, Apr 27 p 91

WARREN CO.
Service Centers See Signs of Improvement, Apr 27 p 91

WASHING NICHIBEI CONSULTANTS
Japanese Autos Could Face Trade Restraints, March 11 p 15

WASTE MANAGEMENT
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23
Kaiser Steel Turns Waste Oil to Cash, June 1 p MP-1
Reynolds Metals Expand Reclamation Plant, June 1 p MP-1

ROBERT WASZ
Service Centers Wary of Plate Market, Feb 11 p 77

WATERBURY FARREL CO.
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31

WATERMAN ENGINEERING CO.
Engineering Ethics Move Out of Factory and into Courtroom, by R.E. Harvey, Feb 11 p 43

WATER POLLUTION
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

JAMES G. WATT
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, by R.J. Regan, May 4 p 63
Cabinet Nominees Vow 'Common Sense' Policies, Jan 14 p 13
Reagan Won't 'Lock Up' Resources, Watt Says, Apr 6 p 19
States Get More Control of Surface Mining, June 10 p 15
U.S. Minerals Policy Starts to Evolve, Apr 15 p 13

R. S. WATTERSON
Submerged Injections Applied to Openhearths, May 4 p MP-3

GEORGE WAUGH
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

WAUPACA FOUNDRY
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

HENRY WAXMAN
...But the Clean Air Act Won't Get a Major Overhaul, March 23 p 15
Clean Air Stretch-Out Awaits Move by House, Apr 27 p 11

WEAN-UNITED, INC.
Service Centers Aim to Offer More Service, June 22 p 120
Wean Builds Seamless Tube Mill for CF&I, March 2 p MP-6

JERRY WEAVER
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

MICHAEL D. WEBBER
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

WEBBER MITCHELL HUTCHINS INC.
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

MURRAY WEIDENBAUM
Auto Rules Could Move Detroit in a New Direction, by B.H. Berry, May 13 p 19
Now We'll Find Out What We're Made Of, by Gene Beaudet, Feb 23 p 5
Why the Reagan Plan Will or Won't Work, by Roger Lopata, June 10 p 33

CASPAR WEINBERGER
Defense Contracts Will Prime the Pump, by E.W. Bowers and G.J. McManus, Apr 15 p 40

BENJAMIN WEINER
Successfully Doing Business in an Uncertain World, by P.J. Cathey, Jan 14 p 35

GEORGE W. WEINFURTNER
Welding and Robotics, March 23 p A-1

WEIRTON STEEL DIV.
'Margins are Going to Have to Improve,' National's Love, by G.J. McManus, May 4 p 37

WALTER K. WEISEL
Is Industry Failing to Use Robots Enough? June 10 p 23

JOHN F. WELCH, JR.
GE Foresees Slow Pace for the Economy in '81, Feb 11 p 13

ROBERT G. WELCH
Service Centers in the Eighties, May 13 p A-1
Welch Steps Down from SSCI Post, May 4 p 115

WELDING
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Help is on the Way for Spot Welding, by R.R. Irving, May 25 p 87
Homopolar Welding: Industry's Interested, by R.R. Irving, March 2 p 73
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, by J.D. Baxter, Jan 5 p 55
Sandvik Scales Up Its Welding Output, June 1 p 17
Welding and Robotics, March 23 p A-1
Welding is Falling into Robots' Clutches, Apr 27 p 11

WELDING INSTITUTE
Welding and Robotics, March 23 p A-1

WELDING RESEARCH COUNCIL
Welding and Robotics, March 23 p A-1

WELDUN INTERNATIONAL, INC.
Precision Machining in the Midst of a Slump, by K.W. Bennett, June 10 p 51

JAMES WELL
Service Center Meeting Draws Large Crowd, June 1 p 60

G. C. WENDT
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

ROBERT WENDT
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Park r, March 23 p 29

WESTERN ELECTRIC CO.
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61

WEST GERMANY
Comparing Growth Rates of Major Nations, March 11 p 29

ALAN F. WESTIN
PSST! Worker Privacy Deserves Scrutiny! by K.R. Moldt, March 11 p 39

WESTINGHOUSE CANADA LTD.
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

WESTINGHOUSE ELECTRIC CORP.
Computers and Manufacturing, June 22 p A-1
How Can We Stave Off an OPEC in Metals? by R.R. Irving, May 25 p 79
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123
Reaching Out to the Worker, by P.J. Cathey, June 10 p 61
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

WESTVACO CORP.
NAM Targets National Priorities Agenda, by E.W. Bowers, May 4 p 51

WHARTON SCHOOL
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

WHEELABRATOR FINANCIAL CORP.
Leasing Firms Become a New Source of Cash, by G.J. McManus, June 22 p 38

WHEELING-PITTSBURGH STEEL CORP.
Profits: Steel Mixed, Nonferrous Sliced, by G.J. McManus and R.J. Regan, May 25 p 46
Steel Scales Down to Drive Its Profits Up, by G.J. McManus, May 25 p 23
U.S. Steel Plans Rail Mill for South Works, Apr 15 p 95
Wheeling-Pittsburgh Plans Expansion, June 10 p 104

WHIRLPOOL CORP.
DOE Appliance Rules are on the Back Burner, March 23 p 16

THOMAS WHITAKER
Service Center Meeting Draws Large Crowd, June 1 p 60

I. T. WHITE
How Small Plants Can Cut Costs and Still Survive, by G.A. Weimer, Apr 15 p SP-3

JEFF WHITE
Blake & Johnson Now Part of Industry History, Feb 11 p 17

ROLAND WHITE
Keeping Good Managers Isn't Difficult—But It Demands Planning, by P.J. Cathey, March 23 p 117

WHITE CONSOLIDATED INDUSTRIES, INC.
Cavalcade of News—Metalworking's Stories of 1980, Jan 5 p 119

WHITE FARM EQUIPMENT CO.
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Recovery Seen in Farm, Construction Equipment, March 11 p 12

S. S. WHITE INDUSTRIAL PRODUCTS DIV.
AJM Thrives on Making the "Impossible" Jobs Possible, by J.J. Obrzut, March 11 p 57

WHITE-SUNDSTRAND MACHINE TOOL CO.
Captive NC Builders See More Systems in Their Future, by A.M. Greene, Apr 27 p 51
High Speed Machining Could Burst on Scene, by R.J. Larsen, Apr 27 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74
Machine Tool Builders Look for Another Big Year, by Iron Age Staff, Feb 23 p 31
White-Sundstrand is On the Move Again, by R.J. Larsen, Feb 2 p 57

A. W. WHITEHOUSE
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, by G.A. Weimer, May 4 p 52

B. C. WHITMORE
Steel Producers in Search of a Hot Connection, by G.J. McManus, Jan 5 p MP-7

GEORGE WHITNEY
America Needs a Couple of Thomas Alva Edisons, by S.T. Parker, June 1 p 24

WHINTON SPINDLE DIV.
High Speed Machining: Taking Cutting Speeds One Step Beyond, by R.J. Larsen, Apr 15 p 74

WHITTAKER CORP.
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

R. A. WHITWORTH
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

ROBERT WIDMER
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

D. BRUCE WIESLEY, JR.
Material Handling Faces a Product Liability Crisis, by G.A. Weimer, March 11 p 48

WIGGIN ALLOYS LTD.
Mechanical Alloying: It Works, June 10 p 84

JAMES W. WILBER
Static Electricity: The Hidden Problem, by R.E. Harvey, Apr 6 p 77

J. W. WILCOCK
Oil Money Can Finance Coal's Development, March 2 p 23

JAMES WILCOX
Employee Incentives Plus New Technology Equals Productivity, by K.W. Bennett, Feb 2 p 43

NORMAN WILKINSON
Hipping: A Good Way to Improve Properties, by R.R. Irving, Feb 23 p 77

W. LAMAR WILKINSON
Service Centers in the Eighties, May 13 p A-1

GORDON H. WILLET
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

HAROLD M. WILLIAMS
Interest Rate Surge Takes Toll on Plant Spending, by J.D. Baxter, Jan 26 p 28
SEC Staff Cool to More Disclosure Rules, by C.T. Post, March 2 p 31

THOMAS F. WILLIAMS
Federal Waste Disposal Laws Generate Piles of Lawsuits, by E.W. Bowers, May 13 p 23

WILLIAM WILLIAMSON
Service Centers Remain Cautious about Stocks, Apr 15 p 98

GEORGE E. WILLIS
Welding and Robotics, March 23 p A-1

WILSON ABRAHAM CONSTRUCTION CORP.
Court Gives Backing to Antitrust Laws, June 10 p 15

RICHARD J. WILSON
Inland's No. 7 Start-Up More than Pushing the Right Buttons, by G.J. McManus, March 2 p MP-7

ROBERT WILSON
Will Synfuels Survive Its Uncertain Future? by Roger Lopata, March 23 p 34

W. R. WILSON
Carlson Retiring: Wilson Named CEO at Lukens, Feb 11 p 20
New at the Helm: Wilson Likes Lukens, May 13 p 36

ROBERT M. WILTHEW
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

PAUL WINGATE
How Service Centers View the New Year, Jan 5 p 168

WILLIAM W. WINPISINGER
'81 Looms as a Year of Change for Labor, by G.J. McManus and E.W. Bowers, Jan 14 p 23

WIRE
USS Launches General $10 Steel Price Hike, May 25 p 14

D. L. WISE
J&L Strips a Mill of Its Troubles, by K.W. Bennett, Feb 2 p MP-15

MAYNARD WISHNER
Small Firms Find Many Roads Yield Investment Cash, by K.W. Bennett, Apr 15 p SP-13

PAUL J. WISNIEWSKI
Wyman-Gordon Invests in Forming Technology, Feb 2 p MP-3

R. H. WITT
Foundries Continue to Pour Money into Improvement, by K.W. Bennett, Apr 6 p MP-9

REX S. WOLF
Software Buying Poses Some Hard Choices, by A.M. Greene, Jan 26 p 55

JERRY WOOD
Is Industry Ready for the Next Fuel Crunch? by R.E. Harvey, March 2 p 55

DONALD WOODCOCK
Service Centers in the Eighties, May 13 p A-1

DAVID WOODRUFF, JR.
Service Center Orders are Perking Up, May 4 p 115

WORTHINGTON INDUSTRIES, INC.
Pickup in Flat-Rolled Gains Strength, May 25 p 95

JOHN A. WRIGHT
Lead Producers Need More Battery Sales, June 1 p 58

KUANG-MING WU
Are Smaller Cars Creating Bigger Risks for Auto Makers? by B.H. Berry, Apr 15 p 33

JOSEPH WYMAN
The Boom in Energy—The Oil Industry Suppliers Take Off, by G.J. McManus and S.T. Parker, March 23 p 29
More Capacity for Tubular Products Comes on Stream, March 23 p 33

WYMAN-GORDON CO
Forgers Fear the Pressure from a Military Buildup, by G.A. Weimer, Jan 14 p 33
Wyman-Gordon Invests in Forming Technology, Feb 2 p MP-3

X

XEROX CORP.
Computers and Manufacturing, June 22 p A-1
Get Workers into the Act if Entitlements Hobble Productivity, by C.T. Post, June 22 p 79
Management in America: Reshaping the Vision—Where the Business System Stands Now, by Roger Lopata, Apr 15 p 59
Office Automation Continues to Attract Manufacturing, by A.M. Greene, March 23 p 123

Y

YAMAZAKI MACHINERY WORKS LTD.
Yamazaki: Another Japanese Heavyweight Enters the U.S. Market, by R.J. Larsen, June 10 p 43

ELLARD YEO
Service Centers See Signs of Improvement, Apr 27 p 91

BRIAN W. YOUNG
Will Materials Change Shape of Tomorrow's Machine Tool Industry? by Iron Age Staff, June 22 p 87

JOHN W. YOUNG
Why Automotive is Putting Its Faith in High Strength Steels, by R.R. Irving, Jan 14 p 47

Z

CHARLES ZALK
Service Centers Wary of Plate Market, Feb 11 p 77

ZALK STEEL & SUPPLY CO.
Service Centers Wary of Plate Market, Feb 11 p 77

CLAUDIA ZANER
Quanex: Making the Right Moves at the Right Time, by S.T. Parker, Apr 6 p MP-21

CHARLES H. ZENUK
Will Powder Rolling Take On Sheet Steel? by R.R. Irving, June 1 p MP-15

JON G. ZIEGLER
Why Furnace Builders Haven't Been Burned by Energy Crisis, by J.J. Obrzut, Feb 11 p 51

ZINC
Asarco Settles Strike, Boosts Zinc Production, March 2 p 97
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Nonferrous Producers Ask R & D for Energy and Emission Answers, by R.J. Regan, Feb 2 p 49

GEORGE ZIVERTS
Service Centers—Some Suppliers Think Upturn is Underway, Jan 26 p 78

W. TOM ZURSCHMIEDE, JR.
U.S. Fastener Makers Ready with Metric Shapes and Sizes, by G.A. Weimer, Jan 14 p 41

AUTHORS

BAXTER, J. D.
Equipment is Better, But Its Productivity Falls—How Come? June 22 p 33
First Quarter Report—Putting the Punch Back in Metalworking, by Iron Age Editors, Apr 6 p 29
Interest Rate Surge Takes Toll on Plant Spending, Jan 26 p 28
It's Back to College for CEO's—This Time to Teach, March 23 p 44
Just How 'Obscene' are Corporate Profits? Feb 11 p 28
Metalworking 1981 Annual Forecast—Growth Carved Out the Hard Way, Jan 5 p 55

BEAUDET, GENE
Am I Wrong to Let this Get My Goat? Feb 2 p 7
By Any Measure, It's No Good, June 1 p 5
Did the President's View of the Economy Puzzle You? May 13 p 5
A Final Try in Sorting Things Out, May 4 p 7
Is There Gold in Them Thar Valleys? Apr 6 p 5
Is This a Step Forward for Product Safety? June 10 p 7
Is this Our Last Chance? March 2 p 7
More on Sorting Things Out, Apr 27 p 5
Now We'll Find Out What We're Made Of, Feb 23 p 5
Patience! Patience! Who Needs Patience! Jan 14 p 7
A Resolution You Can't Refuse, Jan 5 p 7
Sorting Things Out: A Short Q & A, Apr 15 p 7
Steel Goes for the Big Apple, May 25 p 7
Well, Before They Bring It Up, March 23 p 5
What Kind of Alternative is This? March 11 p 5
Where Not to Look for Answers, Jan 26 p 7
Who Says We'll Blow the Money? June 22 p 7

BENNETT, K.W.
Employee Incentives Plus New Technology Equals Productivity, Feb 2 p 43
Firms Cut Their Risks with Self-Insurance, Feb 2 p 33
Fluid Power Gets Set for Growth over the Long Haul, March 2 p 61
Foundries Continue to Pour Money into Improvement, Apr 6 p MP-9
J & L Strips a Mill of Its Troubles, Feb 2 p MP-15
Precision Machining in the Midst of a Slump, June 10 p 51
Small Firms Find Many Roads Yield Investment Cash, Apr 15 p SP-13

BERRY, B. H.
Are Smaller Cars Creating Bigger Risks for Auto Makers? Apr 15 p 33
Auto Rules Could Move Detroit in a New Direction, May 13 p 19
Chrysler Keeps Up Its Fight for Survival, March 2 p 45
Detroit's Still Trying to Rev Up Its Engine, Feb 11 p 39

BOWERS, E. W.
Defense Billions—How Much Money is Being Wasted? June 1 p 21
Defense Contracts Will Prime the Pump, Apr 15 p 40
Federal Waste Disposal Laws Generate Piles of Lawsuits, May 13 p 23
A Final Try at Sorting Things Out, May 4 p 7
IRS is Slow to Credit Industry for Energy Saving, Jan 26 p 24
Kemp-Roth Bill Gets a New Lease on Life, Jan 14 p 28
NAM Targets National Priorities Agenda, May 4 p 51
'81 Looms as a Year of Change for Labor, Jan 14 p 23
Skilled Manpower Shortage: A Crisis Facing Defense, June 22 p 51
Steel Gets Three-Year Breather on Clean Air Act, June 10 p 21
Tense Atmosphere Prevails for Clean Air Act Debate, Feb 11 p 34
U.S. Machine Tool Builders Off-Balance Overseas, March 11 p 36
Washington's Ready to Support U.S. Exporters, May 25 p 39

CATHEY, P. J.
AISI's De Lancey "Tax Cut Fight Will be Tough," by P.J. Cathey, June 22 p 47
Flexibility Can Help the Buying Decision, Apr 15 p SP-22
Keeping Good Managers Isn't Difficult—But It Demands Planning, March 23 p 117
Reaching Out to the Worker, June 10 p 61
Special Issue Groups Will Challenge Management '80, Feb 23 p 55
Steel Output Could Total 1 Billion Tons by 1990, Jan 5 p MP-27
Successfully Doing Business in an Uncertain World, Jan 14 p 35

GREENE, A. M.
CAD/CIM in Europe: Autos, Aerospace Lead in Automation, May 25 p 65
CAD/CAM Shapes Up as Billion Dollar Market, Feb 23 p 63
Captive NC Builders See More Systems in Their Future, Apr 27 p 51
Control Systems for Small Manufacturers, Apr 15 p SP-31
GM Wants Machines to See, Hear and Feel their Work, May 4 p 96
Office Automation Continues to Attract Manufacturing, March 23 p 123
Software Advances Pay Big Dividends, June 1 p MP-10
Software Buying Poses Some Hard Choices, Jan 26 p 55
System Alpha Packs Dual Control Punch, Feb 11 p 64

HARVEY, R. E.
Detroit Turns to Suppliers for Help in Manufacturing R & D, Jan 26 p 63
Engineering Ethics Move Out of Factory and into Courtroom, Feb 11 p 43
Industry Must Cope with Changing Winds of Innovation, Apr 6 p 65
Is Industry Ready for the Next Fuel Crunch? March 2 p 55
Is Japan Doing a Better Job Managing Inventory? June 1 p 38
Small Plants Respond to Quality Demands, Apr 15 p SP-27
Static Electricity: The Hidden Problem, Apr 6 p 77

IRON AGE EDITORS
First Quarter Report—Putting the Punch Back in Metalworking, Apr 6 p 29

IRON AGE STAFF
Machine Tool Builders Look for Another Big Year, Feb 23 p 31
Will Materials Change Shape of Tomorrow's Machine Tool Industry? June 22 p 87

IRVING, R. R.
Alloy 718: The Workhorse of Superalloys, June 10 p 77
Duplex Stainless Keeps Corrosion in Check, May 4 p 93
Help is on the Way for Spot Welding, May 25 p 87
Hipping: A Good Way to Improve Properties, Feb 23 p 77
Homopolar Welding: Industry's Interested, March 2 p 73
How Can We Stave Off an OPEC in Metals? May 25 p 79
New Mill Starts to Roll for Eastern Stainless, March 2 p MP-21
Product Liability: How to Prevent It, Feb 2 p 23
A Tale of Adhesively-Bonded Aircraft, May 4 p 87
Why Automotive is Putting Its Faith in High Strength Steels, Jan 14 p 47
Will Powder Rolling Take on Sheet Steel? June 1 p MP-15

LARSEN, R. J.
High Speed Machining Could Burst on Scene, Apr 26 p 66
High Speed Machining: Taking Cutting Speeds One Step Beyond, Apr 15 p 74
White-Sundstrand is on the Move Again, Feb 2 p 57
Yamazaki—Another Japanese Heavyweight Enters the U.S. Market, June 10 p 43

LOPATA, ROGER
Don't Pour Money Down the Drain, March 2 p 76
If You Can't Buy Them, Build Them, Says Fabricator, June 10 p 83
Inflation Accounting Takes Its Toll, But is a Valuable Tool, May 25 p 55
Key Indicators: Simpler Way to Manage, Jan 26 p 41
Management in America—Reshaping the Vision—Where the Business System Stands Now, Apr 15 p 59
New at the Helm: Wilson Likes Lukens, May 13 p 36
Nickel's Supply-Demand Roller Coaster May Get Costlier, March 11 p 30
Why the Reagan Plan Will or Won't Work, June 10 p 33
Will Synfuels Survive Its Uncertain Future? March 23 p 34

MCMANUS, G. J.
Atlantic Puts Money in Continuous Casting, March 2 p MP-26
The Boom in Energy—The Oil Industry Suppliers Take Off, March 23 p 29
Can Reagan Make Tight Money Work? Apr 15 p 53
Continuous Casting Continues to Evolve New Techniques, Feb 2 p MP-7
Defense Contracts Will Prime the Pump, Apr 15 p 40
Detroit Turns to Suppliers for Help in Manufacturing R & D, Jan 26 p 63
High Fuel Bills Prompt Furnace Relining, Apr 6 p MP-29
Inland is Looking to Do More Things, May 13 p 32
Inland's No. 7 Start-Up More than Pushing the Right Buttons, March 2 p MP-7
Leasing Firms Become a New Source of Cash, June 22 p 38
'Margins are Going to Have to Improve,' National's Love, May 4 p 37
'81 Looms as a Year of Change for Labor, Jan 14 p 23
Oxygen Steelmaking Moves to a More Active State, June 1 p MP-5
Profit '80: Steel Down, Nonferrous Hurt, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, May 25 p 46
Steel Producers in Search of a Hot Connection, Jan 5 p MP-7
Steel Scales Down to Drive Its Profits Up, May 25 p 23
Tippins In Murchison Out at Allegheny Ludlum, March 2 p MP-24
U.S. Steel Beginning to See a Turnaround, Apr 27 p 29
U.S. Steel Plots Its Strategy for the '80s, Jan 5 p MP-16
"We Are What We Are," Bethlehem's Trautline, Apr 15 p 43

MOLDT, K. R.
PSST! Worker Privacy Deserves Scrutiny! March 11 p 39
The Pressure is On to Keep Workers Off Permanent Layoff, Feb 23 p 49
Putting Flexibility into Benefit Plans Increases Options, Apr 27 p 43
Software Keeps Track of Workers Exposed to Toxic Materials, May 13 p 127

OBRZUT, J. J.
AJM Thrives on Making the "Impossible" Jobs Possible, March 11 p 57
Get Superconductivity from Superabrasives, May 13 p 140
Materials Selection: How the Computer Helps Reduce Failures, Apr 27 p 57
Metal Cleaning: It's the Degree of Cleaning that Counts, June 1 p 43
New Galvanized Product Assumes Dual Roles, Apr 6 p 71
Why Furnace Builders Haven't Been Burned by Energy Crisis, Feb 11 p 51

PARKER, S. T.
America Needs a Couple of Thomas Alva Edisons, June 1 p 24
Are Thieves Riding High in the Oil Country? May 4 p 45
The Boom in Energy—The Oil Industry Suppliers Take Off, March 23 p 29
Can Industry Protect Its Leaders from Tragic Death? Feb 2 p 28
Credit Managers Find More Interest in Their Work, March 11 p 42
Mexico's Taking the Well-Oiled Route to Industrialization, Apr 27 p 23
Quanex: Making the Right Moves at the Right Time, Apr 6 p MP-21

POST, C. T.
Advanced Materials Keep Pushing Aircraft Higher and Higher, May 4 p 79
Get Workers into the Act if Entitlements Hobble Productivity, June 22 p 79
Has Metalworking Overlooked the Virtues of Titanium, Feb 11 p 58
Is There Trouble Brewing in California's Silicon Valley? May 13 p 131
SEC Staff Cool to More Disclosure Rules, March 2 p 31
What's Beyond the Plastic and Glue in Today's Aircraft, March 23 p 133

REGAN, R. J.
Anaconda Aluminum Boosts Rolling Capacity, March 2 p 73
Big Oil Baits its Hook for Nonfuel Minerals, Apr 27 p 34
Cabot Wagers $13 Million on Aluminum's Alloy Needs, June 1 p MP-17
Can Magnesium Dent the Auto Industry? June 1 p 32
Climax Molybdenum: One Eye on the Economy, the Other on Big Oil, May 4 p 63
Nonferrous Producers Ask R & D for Energy and Emissions Answers, Feb 2 p 49
Profit '80: Steel Down, Nonferrous Hurt, March 2 p 38
Profits: Steel Mixed, Nonferrous Sliced, May 25 p 46

WEIMER, G. A.
Detroit's Still Trying to Rev Up Its Engine, Feb 11 p 39
Forgers Fear the Pressure from a Military Buildup, Jan 14 p 33
How Small Plants Can Cut Costs and Still Survive, Apr 15 p SP-3
Its Back to School for Workers at GM, June 22 p 83
Material Handling Faces a Product Liability Crisis, March 11 p 48
Mining Equipment Makers Still Don't Hear the Sounds of a Boom, May 4 p 52
Republic's De Lancey Sees a Capital Spending Surge, May 25 p 36
The Space Shuttle Rockets Metalworking into the Future, March 11 p 22
U.S. Fastener Makers Ready with Metric Shapes and Sizes, Jan 14 p 41

IRON AGE

SEMI-ANNUAL INDEX

JULY — DECEMBER 1981

Volume 224

SUBJECT

A

ABC METAL SUPPLY, INC.
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63

ABC METALS, INC.
Copper, Brass Centers Recover in September, Oct 5 p 112

AMCA INTERNATIONAL CORP.
Koehring Foresees a Construction Recovery, July 15 p 24

AMCON GROUP, INC.
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

ASEA, INC.
ASEA and ESAB Aim at U.S. Robot Market, Sept 28 p 29
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

AACHEN TECHNICAL UNIVERSITY
Flexible Manufacturing: The Technology Comes of Age, R.J. Larsen, Sept 7 p 82

ABRASIVES
Coated Abrasive Belts Get Stronger Backing, by J.J. Obrzut, Aug 3 p 59
Norton Sees Big Market for New Grinding Wheel, Sept 7 p 19

DONALD ACHORN
New England Centers Have Inventory Woes, Sept 7 p 183

ACHORN STEEL CO.
New England Centers Have Inventory Woes, Sept 7 p 183

ROBERT M. ACKER
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

ACME-CLEVELAND CORP.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Machine Tools Crucial to National Security, Oct 5 p 13
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

STUART ADAMSON
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48

ADAPTIVE CONTROL SYSTEMS
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

ADELPHI UNIVERSITY
Tongue-Tied U.S. Execs Inflict Toll on Trade, by K.R. Moldt, July 6 p 75

AER LINGUS
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

AEROSPACE
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
...But Reagan's B-1 Decision Will Provide Work for Aerospace, Oct 14 p 17
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31
Plane Builders Face Near Term Clouds, Sept 7 p 15
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36
The Space Shuttle Goes Aloft for Its Second Test Flight, by G.A. Weimer, Nov 23 p 60
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1

AETNA-STANDARD ENGINEERING CO.
Who's First in Seamless Technology? by G.J. McManus, Sept 7 p MP-42

AIR POLLUTION
Air/Water Clean-Up Costs Stunt Steel's Growth, by P.J. Cathey, Sept 7 p MP-55
Bethlehem Steel Makes Environmental Changes, July 6 p MP-5
Clean Air Act Reform Unlikely Until Spring, Dec 28 p 16
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51
Detroit Wants Changes in Clean Air Act, Oct 26 p 14
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9
Reagan Proposals Would Ease Pollution Restrictions, Dec 7 p 41
Reagan Will 'Guide' Clean Air Act Revamp, by E.W. Bowers, Aug 24 p 17
Revise Clean Air Act, Says EPA Head, July 15 p 19
Steel Gets Break on Clean Air Regulations, Aug 3 p 15
White House to Seek Clean Air Act Changes, Aug 12 p 13

AIR PRODUCTS AND CHEMICALS, INC.
Why Chromium is the Most Critical of all Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

AIRCO INDUSTRIAL CO.
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

AIRCRAFT
Air Force Picks McDonnell Douglas' CX Plane, Sept 16 p 17
Australians to Buy F/A 18 Fighter Plane, Nov 11 p 24
...But Reagan's B-1 Decision Will Provide Work for Aerospace, Oct 14 p 17
Consult Us on B-1, Congress Warns Reagan, July 27 p 15
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
Import Flood Sparks a Wave of R&D at European Show, by R.J. Larsen, Nov 2 p 81
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Lockheed Will Stop Producing L-1011s, Dec 28 p 16
Northrop Gets Contract for Stealth Bomber, Nov 2 p 29
Plane Builders Face Near Term Clouds, Sept 7 p 15
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still A Toss of the Coin? July 6 p 39
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

AIRCRAFT ENGINES
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19

AIRMOTIVE IRELAND
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

AJAX MAGNETHERMIC CORP.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
Talking Business, Aug 12 p 45

ALABAMA BY-PRODUCTS CO.
Alabama By-Products May Shut Pa. Plant, Aug 24 p 129
Alabama By-Products Shuts Down Pa. Plant, Sept 16 p 71

ALASKA
Reagan Says No Funds for Alaska Pipeline, Nov 11 p 24

ALASKAN COPPER & BRASS, INC.
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

GERALD ALBON
Chicago Service Centers Keep Things Moving, July 15 p 75

ALCAN ALUMINUM CORP.
Auto Slump Delays Alcan Expansion, July 6 p 119
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41

ALCAN ALUMINUM LTD.
Alcan Sues California on Tax Issue, by G.J. McManus, Aug 3 p 71
Aluminum Stocks Highest in Six Years, Nov 2 p 112
Brazilian Bauxite Upsets Market, July 6 p 120
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41

V. E. ALEXANDER
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114

ALLEGHENY INTERNATIONAL CORP.
AI Beats Out IC to Acquire Sunbeam, Nov 2 p 112
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53

ALLEGHENY LUDLUM STEEL CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

ALLEN-BRADLEY CO.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

LEONHARD ALLGAIER
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

ALLIANCE OF THE METALWORKING INDUSTRIES
Mr. Stanley Goes to Washington and Talks to Congress, by F.W. Bowers, July 15 p 43

ALLIS-CHALMERS MFG. CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

ALLIS-CHALMERS CO.
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

ALLOY RODS CO.
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

ALLOYS
Cheaper Route to New Metals, Ceramic Alloys Oct 5 p 93
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29
Implants Impart Wear Resistance to Alloy Surfaces, Sept 16 p 64
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1

ALUMINA
U.S. is Not Vulnerable to Any Bauxite Cutoff, Dec 16 p 75

Alumax Inc.
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41

ALUMINUM
Aluminum Cuts Output as Bookings Drop, by R.J. Regan, Aug 12 p 84
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
Aluminum Output High, Exceeds 1980's Pace, July 6 p 119
Aluminum Output Sags as Year Nears Close, Dec 7 p 88
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70
Aluminum Output Won't Match 1980 Record, Oct 14 p 93
Aluminum Shipments Dropped in 1980, July 15 p 71
Aluminum Shipments Gain Little in First Half, Sept 16 p 71
Aluminum Stocks Highest in Six Years, Nov 2 p 112
Aluminum Stocks Hit Three-Year High, Oct 5 p 111
Auto Slump Delays Alcan Expansion, July 6 p 119
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Brazilian Bauxite Upsets Market, July 6 p 120
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63
Consolidated Contracts for Aluminum Plant, July 6 p MP-5
Detroit Will Demand More Aluminum Castings, Nov 2 p 21
Energy-Efficient Retort, Nov 2 p MP-30
For Aluminum, It's a Wide, Wide World, July 27 p 82
GM: Materials Research Will Transform the Car, Sept 16 p 19
Howmet to Start Up Cold Rolling Mill, Sept 28 p 116
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Kaiser-Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
Kaiser Hikes Prices; Lowers Output, Oct 14 p 97
Kaiser Perfects Electromagnetic Casting, Oct 5 p MP-5
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49
Primary Aluminum Production Declines, Sept 28 p 115
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41
U.S. Aluminum Exports to Japan in Trouble, Nov 11 p 85
World Aluminum Market Has Indigestion, by R.J. Regan, Aug 24 p 125
World Aluminum Output is Sagging Off, Dec 16 p 75

ALUMINUM ASSN.
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
Aluminum Output High, Exceeds 1980's Pace, July 6 p 119
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70
Aluminum Shipments Dropped in 1980, July 15 p 71
Aluminum Shipments Gain Little in First Half, Sept 16 p 71
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Primary Aluminum Production Declines, Sept 28 p 115

ALUMINUM CO. OF AMERICA
Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70
Aluminum Output Won't Match 1980 Record, Oct 14 p 93
Aluminum Stocks Hit Three-Year High, Oct 5 p 111
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40

Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41
U.S. is Not Vulnerable to Any Bauxite Cutoff, Dec 16 p 75
World Aluminum Output is Sagging Off, Dec 16 p 75

ALUMINUM INDUSTRY
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Aluminum Shipments' Gain Little in First Half, Sept 16 p 71
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Lung Cancer Risk Low for Aluminum Workers, Nov 2 p MP-7
Primary Aluminum Production Declines, Sept 28 p 115
Ratio Pyrometer from Britain, Nov 2 p MP-50
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41
World Aluminum Market Has Indigestion, by R.J. Regan, Aug 24 p 125

AMADA CO., LTD.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

AMAX INC.
Climax Reduces Its Molybdenum Production, Sept 28 p 116

AMAX LEAD AND ZINC INC.
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

AMAX NICKEL, INC.
Amax Wants Federal Aid for Cobalt Project, Nov 23 p 24

AMCO MESH & WIRE CO.
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13

AMERICAN METAL STAMPING ASSN.
Stampings Shipments, Orders Up in September, Nov 23 p 24

AMERICAN BRIDGE DIV.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

AMERICAN BUREAU OF METAL STATISTICS
Copper Producers Face Supply-Demand Squeeze, Sept 28 p 117
Japan's Copper Cops Less of U.S. Market, Nov 11 p 87

AMERICAN ENTERPRISE INSTITUTE
Federal Agencies Blamed for Coal 'Monopoly', Sept 7 p 19

AMERICAN FEDERATION OF LABOR CIO
AFL-CIO Starts Drive to Organize Southwest, Nov 11 p 21
Reagan Tries to Trim Construction Wages, Sept 7 p 21
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? by E.W. Bowers, Aug 24 p 34
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

AMERICAN HOT DIP GALVANIZERS ASSN.
FHWA Makes U-Turn on Galvanized Rebar, Oct 5 p 19

AMERICAN IMPORTERS ASSN.
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? by E.W. Bowers, Aug 24 p 34

AMERICAN INDUCTION HEATING CORP.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS
Metals Industries Waiting for Reagan's Minerals Policy, by R.J. Regan, Dec 16 p 31

AMERICAN INSTITUTE FOR IMPORTED STEEL
Steel Leery of European Import Restraint, Dec 28 p 13

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS
U.S. Steel Revamps No. 13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21

AMERICAN IRON AND STEEL CO.
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13

AMERICAN IRON AND STEEL INSTITUTE
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Air/Water Clean-Up Costs Stunt Steel's Growth, by P.J. Cathey, Sept 7 p MP-55
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Steel at Crossroads—But in Better Shape, by P.J. Cathey, Aug 3 p 41
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Industry's on the Road Back, AISI Says, July 7 p 21
Steel Leery of European Import Restraint, Dec 28 p 13
Steel Returns Economist's Blast with One of Its Own, Aug 3 p 15
Trade Shortfall Deepens Further in October, Dec 16 p 13
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

AMERICAN MANAGEMENT ASSN.
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

AMERICAN MINING CONGRESS
All Quiet on American Congress Front, Oct 14 p 97
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
Strauss Cites Minerals Role of Third World, Oct 5 p 109
U.S. Policies Impare Mining, Says Strauss, Nov 2 p 29

AMERICAN MOTORS CORP.
AMC Asks Workers to Invest Wages, by B.H. Berry, Dec 7 p 17
AMC Turns to France for Parts for Its Front-Wheel-Drive Renaults, by B.H. Berry, Aug 3 p 19
Are Machine Tool Builders Cutting It with Industry? by Iron Age Staff, Aug 24 p 77
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
UAW Opens the Door to Renegotiation, Dec 28 p 13

AMERICAN OPTICAL CORP.
Fiber Optics Helps Control Critical Welding Operations, by R.R. Irving, Oct 14 p 83

AMERICAN PETROLEUM INDUSTRY
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

AMERICAN PETROLEUM INSTITUTE
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49

AMERICAN PULLMAX CO., INC.
See: SMT-Pullmax Inc.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

AMERICAN SOCIETY FOR METALS
Why Chromium is the Most Critical of all Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

AMERICAN SOCIETY FOR PERSONNEL ADMINISTRATION
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

AMERICAN SOCIETY FOR QUALITY CONTROL
Execs Rank Regulations, Costs Ahead of Quality, July 6 p 28
A Tough Row to Hoe, by Gene Beaudet, July 15 p 7

AMERICAN STEEL CORP.
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74

AMERICAN STEEL & ALUMINUM CO.
Service Centers Oppose Trade Zone Proposal, July 6 p 122

AMERICAN UNIVERSITY
Automation Will be Key to Auto Industry Talks, Nov 23 p 16

AMSCO STEEL CO.
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

ANACONDA ALUMINUM CO.
For Aluminum It's a Wide, Wide World, July 27 p 82

BETSY ANCKER-JOHNSON
Detroit Wants Changes in Clean Air Act, Oct 26 p 14

ARTHUR ANDERSEN
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

ARTHUR ANDERSEN & CO.
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58

GEORGE M. ANDERSON
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

GORDON ANDERSON
There's Moderate Optimism About Sales in '82, Dec 16 p 79

L. A. ANDERSON
Steel Slump Brings Cut in Iron Ore Activity, Dec 7 p 88

TRUMAN D. ANDERSON
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

CALVIN G. ANDRE
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79

ANDRUS GERONTOLOGY CENTER
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

ANNEALING
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29

ANTITRUST LAWS
Antitrust Legislation Head for Capitol Hill, Sept 28 p 17
Justice to Apply 'Rule of Reason' to Anti-Trust, Oct 5 p 13
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

JACK ANTON
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67

ANVIL MINING CORP.
Oil Companies Prowl the Merger Jungle, July 27 p 82

APPLIANCES
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Consumers Loosing Confidence, Oct 14 p 116
Consumers Pessimistic About Jobs, Dec 7 p 108
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Steel Summary: Summer Slump Bottoms Out, by G.J. McManus, Aug 12 p 84

ARGONNE NATIONAL LABORATORY
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

ARMCO INC.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Armco Bids Goodbye to Re-Bar Manufacture, Sept 7 p 171
Armco Hits a Gusher in Oil Country Sales, Nov 2 p 26
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14
Armco Spends on Seamless Tube Expansion, Sept 7 p 165
Armco Starts Operation of Electric Arc Furnace, Sept 7 p MP-3
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7
IISI: Cautious Forecast of '82, by L.R. Goldwater, Dec 7 p MP-23
Ladish Buy Considered Coup for Armco, Aug 3 p MP-3
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Summary: Slow Demand Cuts Shipments, Nov 11 p 85
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

WALTER ARNOLD
Import Flood Sparks a Wave of R & D at European Show, by R. J. Larsen, Nov 2 p 81

SHELDON ARNOT
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7

ASARCO INC.
Copper Prices and Demand Decline, Oct 14 p 101
Copper Prices Rise, But Reason is Obscure, Aug 12 p 86
Copper Takeover Derby Runs at Full Speed, July 15 p 73
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53
Low Producer Stocks are Copper's Only Plus, Dec 28 p 57
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
National Minerals Policy Requires a Strong Boss, Dec 16 p 76
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Strauss Cites Minerals Role of Third World, Oct 5 p 109

ASSN. OF IRON AND STEEL ENGINEERS
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Steel Quality Starts with Recruitment of Talented Engineers, by G.J. McManus, Sept 7 p MP-33

ASSN. OF STEEL DISTRIBUTORS, INC.
Centers Hurt, Not Helped by TPM, Nov 11 p 88
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

ASSOCIATED STEEL CO.
Summer Softness Seeps into Service Centers, Aug 24 p 131

EUGENE V. ATKINSON
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13

ATLANTIS TERMINAL CORP.
New Coal Terminal Planned in Philadelphia, Sept 28 p 20

ATMOSPHERIC FLUIDIZED BED COMBUSTION
TVA Plant Will Test Fluid Bed Process, Oct 5 p 21

THORNE AUCHTER
OSHA to Remain in Place, Auchter Says, July 27 p 19
Thorne Auchter Ready to Give OSHA a New Look, by E.W. Bowers, Nov 23 p 43

THORNE G. AUCHTER
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

AUSTENITIZING
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

AUSTRALIA
Australians to Buy F/A 18 Fighter Plane, Nov 11 p 24
For Aluminum, It's a Wide, Wide World, July 27 p 82

AUTOMATIC TRANSMISSIONS
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

AUTOMATION
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Automation Technologies Merge in Manufacturing, July 27 p 21
Automation Will be Key to Auto Industry Talks, Nov 23 p 16
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19

AUTOMOBILES
AMC Turns to France for Parts for Its Front-Wheel-Drive Renaults, by B.H. Berry, Aug 3 p 19
Autoworkers Adapting to New Workstyles, Nov 11 p 19
Auto Credit Raises Consumer Debt, Oct 26 p 76
Auto Slump Delays Alcan Expansion, July 6 p 119
Autos Blamed for Retail Sales Slump, Dec 7 p 108
Borg-Warner's Five-Speed Transmission Hot Item, July 27 p 13
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Fall Usually Raises Car Sales, But Not this Year, by B.H. Berry, Oct 26 p 13
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Is the Auto Industry's Front Wheel Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
Mini Car Market Blends GM and Suzuki, Sept 7 p 13
Pontiac's Plastic Car Likely to Use New SMC, Dec 28 p 17
Price Incentive Spur Summer Auto Sales, Sept 16 p 19
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Green and P.J. Cathey, Nov 11 p 53
VW Will Open Second U.S. Plant in 1983, Nov 2 p 21

AUTOMOTIVE INDUSTRY
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Automation Will be Key to Auto Industry Talks, Nov 23 p 16
Autoworkers Adapting to New Workstyles, Nov 11 p 19
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34
Come Join Us in Latin America, Says Ford, Aug 24 p 19
Detroit Reports Profits; Production Cuts Expected, Aug 12 p 18
Detroit Wants Changes in Clean Air Act, Oct 26 p 14
Detroit Will Demand More Aluminum Castings, Nov 2 p 21
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Fall Usually Raises Car Sales, But Not this Year, by B.H. Berry, Oct 26 p 13
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
GM Chairman Forecasts Healthier New Decade, July 6 p 22
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29
Is the Auto Industry's Front Wheel Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Management in America—Reshaping the Vision—Rebuilding Competetive Strength, by Michael Marley, Aug 3 p 43
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59
Price Incentive Spur Summer Auto Sales, Sept 16 p 19
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Well, It Is Hard to Believe, by Gene Beaudet, Nov 11 p 7

AVONDALE SHIPYARDS, INC.
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48

AWARDS
Calpro & Koppers Win Productivity Awards, Dec 7 p 46

ARA AYKANIAN
Boston Digital Unveils New Turning Machine, July 15 p 20

B

BABCOCK & WILCOX CO.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
How Cooling It Makes Electric Furnaces, Produce More, by G.J. McManus, Oct 5 p MP-7
Module Linings Fashion Savings, Nov 2 p MP-25
Specialty's Tubing on the Rebound, B & W Says, by S. T. Parker, Oct 14 p 25
Steel Industry: Capital Spending Surges, July 27 p 82
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

FRED BADER
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41

ROBERT S. BAILEY
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

BAILEY-HOOGOVENS CO.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

CHARLES F. BAIRD
Nickel Demand Revival Likely in '82, Dec 28 p 57

JAMES A. BAKER
Confusion Surrounds Proposed Defense Cuts, Sept 16 p 13
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

BAKER MARINE CORP.
National Steel Sells Land in Texas, Sept 16 p 70

MALCOLM BALDRIGE
Adhere to TPM, Baldrige Warns Europeans, Oct 5 p 16
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, E.W. Bowers, Oct 26 p 36
Commerce Studies Metal Industries Productivity, Nov 2 p 112
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
GNP Drops in Third Quarter, Nov 11 p 100
Government Fears Trade War if TPM is Lost, by E.W. Bowers, Dec 7 p 19
IH to Sell Combine Technology to Soviets, Dec 16 p 17
Justice, Commerce Act on Steel Imports, July 15 p 16
Leading Indicators Down Again, Sept 28 p 132
Now About the Fat, Dumb and Happy. . ., by Gene Beaudet, Oct 26 p 7
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? by E.W. Bowers, Aug 24 p 34
Steel Leery of European Import Restraint, Dec 28 p 13
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Trade Deficit Declined $5.6 Billion in August, Oct 14 p 23
Trade Deficit Slumps to $2.6 Billion, Nov 23 p 17
Trade Shortfall Deepens Further in October, Dec 16 p 13
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16
Were They Wrong for Chiding Business? Gene Beaudet, Oct 14 p 7

BALL CORP.
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

CHARLES F. BARBER
Copper Prices Rise, But Reason is Obscure, Aug 12 p 86
National Minerals Policy Requires a Strong Boss, Dec 16 p 76
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41

BARBER-GREENE CO.
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

BAR MILLS
Cartech Continues to Pour Its Profits into Expansion, by G.J. McManus, Sept 7 p MP-37

KENNETH BARCLAY
Koehring Foresees a Construction Recovery, July 15 p 24

JACK A. BARES
Two Managers Who Aren't Running One-Man Shows, by G.A. Weimer, Nov 23 p 73

RAY BARNHART
FHWA Makes U-Turn on Galvanized Rebar, Oct 5 p 19

WILLIAM BARRACLOUGH
U.S. Aluminum Exports to Japan in Trouble, Nov 11 p 85

BARS AND RODS
Accord Reached between Quanex and LaSalle, Dec 7 p 14
Armco Bids Goodbye to Re-Bar Manufacture, Sept 7 p 171
Cartech Continues to Pour Its Profits into Expansion, by G.J. McManus, Sept 7 p MP-37
Cerro Metal Plans Brass Rod Expansion, July 6 p MP-3
Cooper, Brass Centers Recover in September, Oct 5 p 112
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1

JOSEPH BARTOLETTI
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

JOSEPH BARTON
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

JAMES BASCHE
What are the Prospects for an American EEC? July 15 p 33

BASIC OXYGEN FURNACES
AISE Notes Emphasis of Foreign R&D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

BASIC OXYGEN PROCESS
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

BASIC STEEL CORP.
Chicago Service Centers Keep Things Moving, July 15 p 75

BATH IRON WORKS CORP.
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48

BATTELLE COLUMBUS LABORATORIES
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Will Tax Credits Spark Industry to Pick Up the Tab for R&D? by R.E. Harvey, Nov 23 p 51

BATTELLE MEMORIAL INSTITUTE
Nitriding Conquers Its Cyanide Problems, July 6 p 95
Outlook Good for Pellet, Sinter Plants Worldwide, Nov 2 p MP-3
World Coke Study Begun at Battelle, Dec 7 p 88

BATTERIES
Inco ElectroEnergy Put Up for Auction, Dec 28 p 16

BAUXITE
Aluminum Output Won't Match 1980 Record, Oct 14 p 93
Brazilian Bauxite Upsets Market, July 6 p 120
For Aluminum, It' a Wide, Wide World, July 27 p 82
Jamaica Bauxite Buy-Strategy or Politics? Dec 28 p 56
Kaiser-Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
U.S. is Not Vulnerable to Any Bauxite Cutoff, Dec 16 p 75

WILLIAM F. BAXTER
Antitrust Legislation Head for Capitol Hill, Sept 28 p 17
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
Merger Guidelines Fuzzy, Says Antitrust's Baker, Sept 16 p 20

BAYOU STEEL CORP.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

BEARINGS
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Workers Set to Buy Bearings Plant from GM, Nov 11 p 19

GENE BEAUDET
Calpro & Koppers Win Productivity Awards, Dec 7 p 46
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45

JACK A. BECHTEL
AMC Turns to France for Parts for Its Front-Wheel-Drive Renaults, by B.H. Berry, Aug 3 p 19

BECHTEL POWER CORP.
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

GEORGE J. BECKER
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

WALLACE B. BEHNKE, JR.
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

BELGIUM
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

JACK W. BELL
Copper, Brass Centers Recover in September, Oct 5 p 112

ROBERT BELLENGHI
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

J. R. BELLO
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

M.T. BELVIN
Two Texas Pipelines Receive a Go-Ahead, Aug 3 p 20

BENDIX CORP.
Bendix Stamps Axles for New Ford Trucks, Aug 24 p 19
Flexible Manufacturing: More Companies Make Competition Intense, R.J. Larsen, Sept 28 p 85

Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Machine Tools Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

BENDIX MACHINE TOOL CORP.
Flexible Manufacturing: The Technology Comes or Age, by R.J. Larsen, Sept 7 p 82
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

WALTER BENNETT
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

GEORGE J. BENTSON
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

EDWARD R. BERGER
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

HANS U. BERLINGER
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

DAVID BERNARD
Specialty's Tubing on the Rebound, B&W Says, by S.T. Parker, Oct 14 p 25

HAROLD T. BERRY
Nickel Demand Will Rise, If Interest Rates Fall, Sept 7 p 171

BETHLEHEM STEEL CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3
Bethlehem Modernizes at $750 Million Cost, Aug 12 p 18
Bethlehem Steel Improves Galvanizing, Sept 7 p MP-1
Bethlehem Steel Makes Environmental Changes, July 6 p MP-5
Bethlehem to Install Billet Inspection System, Aug 3 p MP-3
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25
Electric Furnaces Debut at Johnstown, Nov 2 p MP-7
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7
Low Sulfur Steel Plates, Nov 2 p MP-46
Plate and Shape Prices Up in a Slack Market, Sept 7 p 165
Talking Business, Nov 2 p 59
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

TIMOTHY J. BETTNER
Composites Force Their Growth Rate by Performance, C.T. Post, Dec 7 p 57

G. K. BHAT
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

BHAT TECHNOLOGY INTERNATIONAL, INC.
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

JOHN J. BIAFORE
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

JOHN C. BIERWIRTH
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47

BILLETS
Bethlehem to Install Billet Inspection System, Aug 3 p MP-3

SUSHIL K. BIRLA
Does Adaptive Control Still Promise Improved Productivity? R.J. Larsen, July 27 p 57

LEONARD L. BIRMINGHAM
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31

HARRY BISHTON
Nitriding Conquers Its Cyanide Problems, July 6 p 95

RAYMOND H. BITTNER
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

JOHN H. BLAESER
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

ALEXANDER BLANTON
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

BLAST FURNACES
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14
Dry Mix Materials Used to Reline Runners, Sept 7 p MP-5
Relining Furnaces by Dry-Mix Refractories, Nov 2 p MP-36
U.S. Steel Revamps No.13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

ROBERT E. BLAUTH
CAM/CAD System Explode in Metalworking, by A.M. Greene, Dec 28 p 48

ROBERT J. BLINKEN
ITC Asked to Extend Fastener Protection, Sept 28 p 17

JOHN D. BLODGER
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

BLOHM & VOSS AG
Shape Welding: A New Concept in Fabrication, by R.R. Irving, Nov 23 p 111

JOHN BLOMQUIST
Is Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40

IRVING J. BLUESTONE
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41

BOARD OF DIRECTORS
How Big Companies Care for Boards, July 15 p 33

GEORGE F. BOBART
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

BODINE ELECTRIC CO.
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

ROBERT BOEDDNER
Service Centers Oppose Trade Zone Proposal, July 5 p 122

BOEING CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Plane Builders Face Near Term Clouds, Sept 7 p 15
Solving the Engineering Problems of Tomorrow's Aircraft Industry, C.T. Post, Aug 12 p 60

BOILERS
Efficient Boilers Could Yield Huge Savings, Sept 16 p 70
Electric Resistance Boilers, Nov 2 p MP-50

BOLIDEN AB
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

CORNEL BOLOG
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7

PETER BOMMARITO
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

L. G. BONAR
Nickel Demand Will Rise, If Interest Rates Fall, Sept 7 p 171

R. E. BONI
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

BOOKS
Book Review—Ferrous Metallurgy in a Nutshell, Sept 7 p 139

BOOZ, ALLEN & HAMILTON INC.
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

BORG-WARNER CHEMICALS, INC.
Borg-Warner-Mitsubishi Hook Up in Plastic Project, Aug 3 p 19

BORG-WARNER CORP.
Borg-Warner-Mitsubishi Hook Up in Plastic Project, Aug 3 p 19
Borg-Warner's Five-Speed Transmission Hot Item, July 27 p 13
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

CLIFFORD R. BORLAND
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

RAY BORZIO
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

BOSTON DIGITAL CORP.
Boston Digital Unveils New Turning Machine, July 15 p 20

WILLIAM A. BOURS
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

J. PARKER BOWDEN
Piersol Pine Cuts Corners without Cutting Quality, by Roger Lopata, Oct 14 p SP-11

BOWDIL CO.
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

S. M. BOYKIN
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23, p 133

JOHN BOYLAN
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

JOHN W. BOYSE
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

LAWRENCE BRADY
Technology Exports to USSR Reviewed, October 5 p 18

YIRMIYAHU BRANOVER
Computerized Machine Checks Parts Fast, Sept 16 p 64

BRASS
Copper, Brass Centers Recover in September, Oct 5 p 112
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

EARL BRATTON
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36

BRAZIL
Brazilian Bauxite Upsets Market, July 6 p 120

BREEDER REACTORS
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

H. A. BREEDLOVE, JR.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

BREMAN STEEL CO.
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133

HARVEY BRENNER
Failure Can be Hazardous to Health, by Roger Lopata, Aug 24 p 59

BRIDGE DECK CORROSION
FHWA Makes U-Turn on Galvanized Rebar, Oct 5 p 19

BRIGGS & STRATTON CORP.
How Briggs & Stratton Combats Inflation, Oct 14 p 36

GUNTER BUCHHOLZ
Import Flood Sparks a Wave of R&D at European Show, by R.J. Larsen, Nov 2 p 81

JOHN BUCKLEY
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20
AI Beats Out IC to Acquire Sunbeam, Nov 2 p 112
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53

BUCYRUS-ERIE CORP.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

BUDGETS
Are You Ready to Give Up, by Gene Beaudet, Sept 16 p 7
Before Things Rise, Something Must Fall, by Gene Beaudet, Sept 7 p 7

BUICK MOTOR DIV.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
GM Buys Cross' CNC Repair Lathe, Sept 28 p 29

BUILDING CONSTRUCTION
Building Blahs Linger, Aug 24 p 50
Building Contracts Off, July 27 p 44
Building Contracts Stable, But Low, Oct 26 p 76
CPI Up 0.8 Pct.; Housing Costs Ease, Oct 14 p 116
Home Building Slumps Further, Dec 16 p 92
Home Construction Still in the Cellar, Sept 7 p 196
Housing Costs Boost CPI, Nov 11 p 100
Housing Starts Decline, Nov 2 p 132
New Home Sales Hit All-Time Low, Nov 23 p 148

JOHN BUNCE
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

BUNKER HILL CO.
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

ROBERT J. BURGER
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

BURKHARDT & WEBER GMBH & CO.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

BURKHARDT & WEBER GMBH & CO.
Import Flood Sparks a Wave of R&D at European Show, R.J. Larsen, Nov 2 p 81

THOMAS J. BUSCH
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

BUSES
Grumman's New Bus is Return to Basics, Nov 2 p 29

BUSINESS CYCLES
Reshaping the Vision—Managing in the 21st Century by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

BUSINESS INTERNATIONAL
Cutting Travel and Entertainment Expense Down to Size, by P.J. Cathey, Nov 23 p 65

BUSINESS ROUNDTABLE
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

WYNN V. BUSSMANN
As Prime Goes Up, Bill Paying Goes Down, Aug 12 p 36

BUTLER TACONITE PROJECTS DIV.
Steel Slump Brings Cut in Iron Ore Activity, Dec 7 p 88

JOHN BYERS
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

J. B. BYRNES
AISE Special Report — Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

RICHARD BRINK
How One Company Created Markets for Its Technology by C.T. Post, Sept 7 p 131

BRIQUETTES
Scrap Corp. to Build Giant Briquetting Plant, Oct 14 p 101

RICHARD BRISCOE
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133

BRITISH NATIONAL OIL CORP.
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 P 67

BRITISH NON FERROUS METALS TECHNOLOGY CENTRE
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73

BRITISH STEEL CORP.
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

WILLIAM E. BROCK
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by E.W. Bowers, Oct 26 p 30
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Special Analysis — Is U.S. Trade Policy Free, Fair or Open?by E.W. Bowers, Aug 24 p 34
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12
Trade Deficit Slumps to $2.6 Billion, Nov 23 p 17
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13

DAVID BROCKMAN
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

BROOKHAVEN NATIONAL LABORATORY
Will Tax Credits Spark Industry to Pick Up the Tab for R&D? by R.E. Harvey, Nov 23 p 51

BROOKINGS INSTITUTION
Steel Returns Economist's Blast with One of It's Own Aug 3 p 15

JERE H. BROPHY
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

J. W. BROUGHER
Expanding Roles of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

D. F. BROWN
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

LARRY BROWN
A New Dimension in CAD/CAM Software, Aug 3 p 20

R. FRANKLIN BROWN, JR.
Copper, Brass Centers Recover in September, Oct 5 p 112

RICHARD T. BROWN
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

BROWN & SHARPE MFG. CO.
Labor Problems Plague Brown & Sharpe Plants, by R.J.Larsen, Nov 2 p 25

BROWN BOVERI CORP.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

ROBIN BRUMWELL
Why Chromium is the Most Critical of All Metals, by R.R. Irving, and K.R. Moldt, Sept 7 p 37

ROBERT BUCHHOLTZ
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 P 44

C

C.I.M.A.S.P.A.
Import Flood Sparks a Wave of R&D at European Show, by R.J. Larsen, Nov 2 p 81

C-R-O, Inc.
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

CF&I Steel Corp.
AISE Special Report — Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41

CSX CORP.
Chessie Conrail Head for a Legal Collision, Aug 12 p 17

CABOT CORP.
Why Chromium is the Most Critical of All Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

CADILLAC MOTOR CAR DIV.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

PHILIP CALDWELL
Is Detroit Automaking Shrinking or Just Changing Its Shape? B.H. Berry, July 27 p 29

CALIFORNIA
Alcan Sues California on Tax Issue, by G.J. McManus, Aug 3 p 71

ROBERT L. CALLAHAN
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

CALPRO CO.
Calpro & Koppers Win Productivity Awards, Dec 7 p 46

SAMUEL CAMENS
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

CAMERON IRON WORKS, INC.
The Forging Industry Moves to Close the Competition Gap, by R.F. Harvey, Nov 2 p 71

ROBERT T. CAMPION
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, by C.T. Post, Nov 2 p 63

CANADA
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by E.W. Bowers, Oct 26 p 30
Reagan Nixes North American Trade Group, Sept 7 p 15
What are the Prospects for an American EEC? July 15 p 33

CANADIAN FOREIGN INVESTMENT REVIEW AGENCY
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by E.W. Bowers, Oct 26 p 30

CANNON-MUSKEGON CORP.
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1

CANS
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
How One Company Created Markets for Its Technology, by C.T. Post, Sept 7 p 131

CAPITAL EXPENDITURES
AISE Special Report — Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Before Things Rise, Something Must Fall, by Gene Beaudet, Sept 7 p 7
Gray: Reinvestment is Key to U.S. Competitive Edge, Nov 23 p 57
IISI: Cautious Forecast for '82 by L.R. Goldwater, Dec 7 p MP-23
Steel Industry: Capital Spending Surges, July 27 p 82
Wharton's View: Record Deficits, No Recession, Oct 26 p 23
Will Capital Spending in '81 Reach Its Goal? Oct 14 p 36
Will Steel Spending Plans Stay on Track? by Gene Beaudet, Oct 5 p 7

JOHN D. CAPLAN
GM: Materials Research Will Transform the Car, Sept 16 p 19

JAMES CAPOLONGO
Bendix Stamps Axles for New Ford Trucks, Aug 24 P 19

CARBON
Implants Impart Wear Resistance to Alloy Surfaces, Sept 16 p 64

CARCINOGENS
Lung Cancer Risk Low for Aluminum Workers, Nov 2 p MP-7

CARCINOMA
Lung Cancer Risk Low for Aluminum Workers, Nov 2 p MP-7

DONALD W. CARLSON
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

CARLTON MACHINE TOOL CO.
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
U.S. Defense Industries are in Trouble, Congress is Told . . ., Oct 14 p 17

CARNEGIE-MELLON UNIVERSITY
Will Tax Credits Spark Industry to Pick Up the Tab for R&D? by R.E. Harvey, Nov 23 p 51

DENNIS J. CARNEY
AISE Special Report — Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Joint Bargainers Dump Wheeling-Pittsburgh, Sept 7 p 21
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41

BERTRAM W. CARNOW
Industry Faces Costly Remedies for Occupational Illness, by R.F. Harvey, Oct 14 p 67

CARNOW, CONIBEAR & ASSOC., LTD.
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

DEAN CARPENTER
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

CARPENTER TECHNOLOGY CORP.
AISE Special Report — Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Cartech Continues to Pour Its Profits into Expansion, by G.J. McManus, Sept 7 p MP-37
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41
Steel Industry: Capital Spending Surges, July 27 p 82

JAMES CARTWRIGHT
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39

J.I. CASE CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

CARLO CASO
Nuclear Industry Recharged for a New Wave of Growth, by R.E. Harvey, Aug 12 p 47

JOHN CASSEL
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105

CAST IRON
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

CAST METAL DIV.
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39

CASTINGS
AISE Special Report — Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Detroit Will Demand More Aluminum Castings, Nov 2 p 21
Eastman 'Invests' in Micromelt Casting Co., Oct 5 p MP-5
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67
Kaiser Perfects Electromagnetic Casting,' Oct 6 p MP-5
National Roll to Add Centrifugal Casting, Nov 2 p MP-7
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast — Is the Outlook Still a Toss of the Coin? July 6 p 39
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1

A. M. CASTLE & CO.
Service Centers See More Action Ahead, Aug 12 p 89
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
There's Moderate Amount Optimism About Sales in '82, Dec 16 p 79

CRAIG CASTLE
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39

SYDNEY L. CATE
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3

CATERPILLAR TRACTOR CO.
Caterpillar to Sell Pipelayers to Soviets, Sept 16 p 20
Caterpillar Takes the Lead in the Use of Flexible Manufacturing, by R.J. Larsen, Sept 28 p 96
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

CELANESE PLASTICS & SPECIALTIES CO.
Coatings Industry Gets off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51
Composite Makers Still Wait for a Breakthrough, by R.J. Regan, Aug 12 p 76

RONALD A. CENOWA
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry Nov 11 p 34

CENTAUR METALS SERVICE, INC.
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3
Profits are Down for West Coast Centers, Sept 28 p 119
Service Centers See Smaller Gains in 1982, Dec 28 p 58

CENTER DE RECHERCHES METALLURGIQUES
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

CENTRAL STEEL TUBE CO.
Central Steel Adds to Oil Country Capacity, Oct 5 p MP-3

CENTRIFUGAL CASTINGS
National Roll to Add Centrifugal Casting, Nov 2 p MP-7

CERAMICS
Cheaper Route to New Metals, Ceramic Alloys, Oct 5 p 93
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

HORST CERJAK
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

CERRO METAL PRODUCTS CO.
Cerro Metal Plans Brass Rod Expansion, July 6 p MP-3

JOHN CHAFEE
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13

CHAMBER OF MINES OF SOUTH AFRICA
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63

CHAPPARRAL STEEL CORP.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

GERRY C. CHARBENEAU
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

CHESSIE SYSTEM
See: CSX Corp.

CHEVROLET MOTOR DIV.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

CHICAGO
Chicago Service Centers Keep Things Moving, July 15 p 75

CHICAGO BALL METAL DECORATING & SERVICE DIV.
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

LIONEL CHICOINE
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

CHINA
As Barter Business Booms, Some Firms Miss the Boat, by Roger Lopata, Oct 14 p 45
Fastener Makers Seek Duty Extension, July 15 p 19
Lockheed Aids Chinese Metalworking Invasion, Aug 12 p 18

CHINA NATIONAL MACHINERY & EQUIPMENT IMPORT & EXPORT CORP.
Import Flood Sparks a Wave of R&D at European Show, by R.J. Larsen, Nov 2 p 81

GEORGE A. CHRISTIE
Building Blahs Linger, Aug 24 p 50
Building Contracts Off, July 27 p 44
Building Contracts Stable, But Low, Oct 26 p 76
Construction Hitting Rock Bottom? Dec 28 p 68
Construction Keeps Dropping, Sept 16 p 84

CHROME ALLOYS
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13
Why Chromium is the Most Critical of All Metals, by R.R. Irving, and K.R. Moldt, Sept 7 p 37

CHROMIUM
Metals Industries Waiting for Regan's Minerals Policies, by R.J. Regan, Dec 16 p 31
Why Chromium is the Most Critical of All Metals, by R.R. Irving, and K.R. Moldt, Sept 7 p 37

CHRYSLER CORP.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Is the Auto Industry's Front Wheel Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34
Fall Usually Raises Car Sales, But Not this Year, by B.H. Berry, Oct 26 p 13
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Price Incentive Spur Summer Auto Sales, Sept 16 p 19
What Ever Happened to Pent-Up Demand? by Gene Beaudet, Nov 23 p 7
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

CIBRO PETROLEUM INC.
New Coal Terminal Planned in Philadelphia, Sept 28 p 20

CINCINNATI MILACRON
Automation Technologies Merge in Manufacturing, July 27 p 21
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
Import Flood Sparks a Wave of R&D at European Show, by R.J. Larsen, Nov 2 p 81
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Machine Tool Technology is More than a Chip off the Old Block, by Iron Age Staff, Nov 23 p 95
Milacron Targets T-10 for Small Plants, Oct 26 p 19
Thinking the Labor Out of Manufacturing at Cincinnati Milacron, Sept 28 p 104
The Trend in Robots is Up — and That's the Truth, Aug 24 p 25

CINCINNATI STEEL PRODUCTS CO.
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105

CITIBANK CORP.
Will Defense Spending be Inflationary? Sept 7 p 35

CITIES SERVICE CO.
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by E.W. Bowers, Oct 26 p 30
Copper Takeover Derby Runs at Full Speed, July 15 p 73
Oil Companies Prowl the Merger Jungle, July 27 p 82

D. MICHAEL CLABAUGH
Milacron Targets T-10 for Small Plants, Oct 26 p 19

DAVID CLANTON
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13

RICHARD CLARE, JR.
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105

DAVID H. CLARK
Steel's Use of Computer Nears Mature Stage, Dec 7 p MP-15

CLARK EQUIPMENT CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

JAMES G. CLAUSSEN
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57

CLEAVER-BROOKS CO.
Electric Resistance Boilers, Nov 2 p MP-50

CLEVELAND
Cleveland May be Site for New Tool Show, Sept 28 p 25

CLEVELAND CRANE CO.
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

CLIMAX MOLYBDENUM CO.
Climax Puts New Moly Mine Project on Shelf, Aug 24 p 128
Climax Reduces Its Molybdenum Production, Sept 28 p 116
Oil Glut, High Interest Deal Solar A Double Whammy, by R.J. Regan, Nov 11 p 49
Why Chromium is the Most Critical of All Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

CLINCH RIVER PROJECT
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

COAL
Both Sides Were Losers in 72-Day Coal Strike, July 6 p 28
Conversion to Coal is Doing Nicely, Says GAO, Oct 5 p 109
Federal Agencies Blamed for Coal 'Monopoly', Sept 7 p 19
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28
New Coal Terminal Planned in Philadelphia, Sept 28 p 20
Reshaping the Vision — Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
USS Seals Coal Deal with SOHIO, Oct 14 p 93

COATINGS
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast — Is the Outlook Still a Toss of the Coin? July 6 p 39

COBALT
Amax Wants Federal Aid for Cobalt Project, Nov 23 p 24
Cobalt Could be Mined in U.S., Interior Says, Sept 16 p. 71
Metals Industries Waiting for Reagan's Mineral Policies, by R.J. Regan, Dec 16 p 31

SALLY COBERLY
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

COCKERILL, S.A.
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

COHERENT, INC.
Coherent Enters Laser Metal Cutter Market, Dec 28 p 18

COILS
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63
Chicago Service Centers Keep Things Moving, July 15 p 75

COKE
U.S. Steel Revamps No. 13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21
World Coke Study Begun at Battelle, Dec 7 p 88

COKE OVENS
Alabama By-Products May Shut Pa. Plant, Aug 24 p 129
Alabama By-Products Shuts Down Pa. Plant, Sept 16 p 71
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9
World Coke Study Begun at Battelle, Dec 7 p 88

G. J. COLUCCI
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

FRANK L. COLVIN
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

COMBINE HARVESTERS
IH to Sell Combine Technology to Soviets, Dec 16 p 17

COMBUSTION ENGINEERING CORP.
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87
Why Chromium is the Most Critical of All Metals, by R.R. Irving, and K.R. Moldt, Sept 7 p 37

ROBERT COMEAUX
AFL-CIO Starts Drive to Organize Southwest, Nov 11 p 21

COMONWEALTH EDISON OF ILLINOIS, INC.
Nuclear Industry Recharged for a New Wave of Growth, by R.E. Harvey, Aug 12 p 47

COMMUNICATI.'N SATELLITES
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

COMMUNICATIONS
Tongue-Tied U.S. Execs Inflict Toll on Trade, by K.R. Moldt, July 6 p 75

COMPOSITE MATERIALS
Composite Makers Still Wait for a Breakthrough, by R.J. Regan, Aug 12 p 76
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60
U.S. Defense Industries are in Trouble, Congress is Told..., Oct 14 p 17

COMPUTER AIDED MANUFACTURING-INTERNATIONAL, INC.
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76

COMPUTER ASSISTED DESIGN
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
A New Dimension in CAD/CAM Software, Aug 3 p 20

COMPUTER ASSISTED ENGINEERING
GE Forms Venture to Market CAE Software, Nov 23 p 26
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56

COMPUTER ASSISTED FABRICATION
First Was CAD, Then CAM-Now, there's CAF, Sept 28 p 25

COMPUTER ASSISTED MANUFACTURING
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, B. H. Berry, Nov 11 p 34
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 pg 82
GE's Grierson Corrals High Technology, by A. M. Greene, Dec 16 p 56
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Machine Tool Technology is More than a Chip Off the Old Block,by Iron Age Staff, Nov 23 p 95
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
A New Dimension in CAD/CAM Software, Aug 3 p 20

Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76
Steel's Use of Computer Nears Mature Stage, Dec 7 p MP-15

COMPUTER GRAPHICS
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times,by B. H. Berry, Nov 11 p 34
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

COMPUTER SOFTWARE
GE Forms Venture to Market CAE Software Nov 23 p 26
General Automation Tries a New Approach to Software, Nov 23 p 82
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76

COMPUTERS
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Board Level Computers: Building Blocks for Industrial Control,by A.M. Greene, Aug 24 p 67
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B. H. Berry, Nov 11 p 34
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101
Computers Draw a Bead at Essen Welding Show, by R.R. Irving, Oct 26 p 17
First Was CAD,Then CAM-Now, there's CAF, Sept 28 p 25
General Automation Tries a New Approach to Software, Nov 23 p 82
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79
A New Dimension in CAD/CAM Software, Aug 3 p 20
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast-Is the Outlook Still a Toss of the Coin? July 6 p 39
Reshaping the Vision—Managing in the 21st Century, by B. H. LeCerf, Michael Marley, R. R. Irving, J. D. Baxter, Roger Lopata, A. M. Greene and P. J. Cathey, Nov 11 p 53
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76
Steel's Use of Computer Nears Mature Stage, Dec 7 p MP-15

COMPUTERVISION, INC.
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

CONCAST CORP.
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18

CONFERENCE BOARD
Consumers Loosing Confidence, Oct 14 p 116
Consumers Pessimistic About Jobs, Dec 7 p 108
Flash! There's More to the News than Bad News! by Gene Beaudet, Dec 7 p 7
Help Wanted: Need More Jobs, Nov 23 p 148
If Inflation Eases, Will Interest Rates? Dec 16 p 29
Is Corporate Liquidity Being Overrated? Sept 16 p 42
Labor Outlook Grim for 1982, Dec 28 p 68
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p p 31
Optimism Undaunted, Aug 24 p 50
Reshaping the Vision—Managing in the 21st Century, by B. H. LeCerf, Michael Marley, R. R. Irving, J. D. Baxter, Roger Lopata, A. M. Greene and P. J. Cathey, Nov 11 p 53
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51
What are the Prospects for an American EEC? July 15 p 33
Why don't U. S. Firms Export More? Oct 26 p 23
Will Big Wage Hikes Rekindle Inflation? July 27 p 41
Will Capital Spending in '81 Reach Its Goal? Oct 14 p 36
World Economic Growth Will be Limited Nov 11 p 33

CONGDON & CARPENTER CO.
New England Centers Have Inventory Woes, Sept 7 p 173

CONGRESS FINANCIAL CORP.
Ways Small Companies Can Reduce Borrowing, Aug 3 p 31

T. L. CONKLIN BRASS & COPPER CO.
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

THOMAS R. CONKLIN
Coherent Enters Laser Metal Cutter Market, Dec 28 p 18

CONSOLIDATED ALUMINUM CORP.
Aluminum Output Sags as Year Nears Close, Dec 7 p 88
Consolidated Contracts for Aluminum Plant, July 6 p MP-5
World Aluminum Market Has Indigestion, by R.J. Regan, Aug 24 p 125

CONSOLIDATED RAIL CORP.
Chessie, Conrail Head for a Legal Collision, Aug 12 p 17

CONSTRUCTION EQUIPMENT
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

CONSTRUCTION INDUSTRY
Building Blahs Linger, Aug 24 p 50
Building Contracts Off, July 27 p 44
Building Contracts Stable, But Low, Oct 26 p 76
CPI Up 0.8 Pct., Housing Cost Ease, Oct 14 p 116
Construction Hitting Rock Bottom? Dec 28 p 68
Construction Keeps Dropping, Sept 16 p 84
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55
Home Building Slumps Further, Dec 16 p 92
Home Construction Still in the Cellar, Sept 7 p 36
Housing Cost Boost CPI, Nov 11 p 100
Housing Starts Decline, Nov 2 p 132
Housing Starts Plunge 10.7 Pct., Oct 5 p 132
Koehring Foresees a Construction Recovery, July 15 p 24
New Home Sales Hit All-Time Low, Nov 23 p 148
Reagan Tries to Trim Construction Wages, Sept 7 p 21
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

CONSTRUCTION INDUSTRY MANUFACTURERS ASSN.
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K. W. Bennett, Sept 7 p 55
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

CONSUMERS
Consumers Keep Faith, July 15 p 34
Income Inches Ahead, July 15 p 34
Consumers Pessimistic About Jobs, Dec 7 p 108

CONTINUOUS ANNEALING
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29

CONTINUOUS CASTING
AISE Notes Emphasis of Foreign R & D in U. S. Industry, by G.J. McManus, Oct 5 p MP-33
AISE Special Report- Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B. H. LeCerf, Sept 7 p MP-7
Consolidated Contracts for Aluminum Plant, July 6 p MP-5
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18
Mill Measuring, Nov 2 p MP-40
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

CONTROL SYSTEMS
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

COOLANTS
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7
U. S. Steel Revamps No. 13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21

W. PAUL COOPER
Machine Tools Crucial to National Security, Oct 5 p 13
Special Analysis—Is U. S. Trade Policy Free, Fair or Open? by E. W. Bowers, Aug 24 p 34

COPPER
Auto, Housing Slumps Hold Down Copper Sales, by R.J. Regan, Aug 24 p 128
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89
Copper, Brass Centers Recover in September, Oct 5 p 112
Copper Industry Has Everything But Demand, Nov 23 p 129
Copper Price Hedging Follows Output Dip, Dec 16 p 76
Copper Prices and Demand Decline, Oct 14 p 101
Copper Prices Move in a Narrow Range, Oct 26 p 61
Copper Prices Retreat on the Hedge Markets, Sept 7 p 169
Copper Prices Rise, But Reason is Obscure, Aug 12 p 86
Copper Producers Face Supply-Demand Squeeze, Sept 28 p 117
Copper Production Cut as Demand Lags, Dec 7 p 90
Copper Takeover Derby Runs at Full Speed, July 15 p 73
Future Copper Output Should Match Demand, July 6 p 120
Japan's Copper Cops Less of U. S. Market, Nov 11 p 87
Low Producer Stocks are Copper's Only Plus, Dec 28 p 57
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49
Quarterly Forecast-Is the Outlook Still a Toss of the Coin? July 6 p 39
Weak Markets Weaken Copper Price Level, Nov 2 p 111

COPPER AND BRASS DISTRIBUTORS ASSN.
Copper, Brass Centers Recover in September, Oct 5 p 112

COPPER & BRASS SALES, INC.
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

COPPER AND BRASS SERVICENTER ASSN.
Service Centers See More Action Ahead, Aug 12 p 89
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133

COPPER DEVELOPMENT ASSN.
Copper Industry Has Everything But Demand, Nov 23 p 129
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49

COPPERWELD CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Copperweld Bets Big on Tubing Expansions, Aug 24 p 125
Copperweld Speaks and Listens to Its Workers, by G.A. Weimer, Sept 7 p MP-46
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R. J. Regan, Nov 11 p 41
U. S. Pressures French on Export Subsidies, Oct 5 p 18

CORROSION
FHWA Makes U-Turn on Galvanized Rebar, Oct 5 p 19
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

COST REDUCTIONS
Want to Cut Costs? Organize to Do the Job, by J. D. Baxter, Aug 24 p 42

RICHARD COTTRELL
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B. H. Berry, July 27 p 29

COUNCIL OF ECONOMIC ADVISERS
Slight GNP Rise is Deceptive. Dec 16 p 92

COURTAULDS, LTD.
Composites Force Their Growth Rate by Performance, by C. T. Post, Dec 7 p 57

WILLIAM COX
Income Inches Ahead, July 15 p 34

JAMES E. COYNE
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C. T. Post, Aug 12 p 60
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12

ROBERT CRANDALL
Steel Returns Economist's Blast with One of Its Own, Aug 3 p 15

BYRON P. CRANE, JR.
Detroit's Productivity Can't Cross Lines of Demarcation, by B. H. Berry, Sept 28 p 41

JOHN CRANE
Why Chromium is the Most Critical of All Metals, by R.R. Irving, and K.R. Moldt, Sept 7 p 37

CRANES
Centers Hesitate to Invest in Equipment, by K. W. Bennett, Oct 26 p 63

CREDIT
Credit Managers Face Double Dilemma, Aug 24 p 49

ADAM CRESCENZI
Line Managers Move from MIS to DSS for Decision-Making Help, by J. D. Baxter, Sept 28 p 71

DENNIS CROSBY
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29

CROSS CO.
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B. H. Berry, July 27 p 29
GM Buys Cross' CNC Repair Lathe, Sept 28 p 29
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

RALPH E. CROSS, JR.
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B. H. Berry, July 27 p 29

CROSS & TRECKER CORP.
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

T. N. CROWLEY
Electric Furnaces Debut at Johnstown, Nov 2 p MP-7

CRUCIBLE, INC.
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12

CRUCIBLE STAINLESS AND ALLOY DIV.
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13

CRUCIBLE STEEL CORP.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

DAVID M. CULVER
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41

J. E. CUNNINGHAM
Why Chromium is the Most Critical of All Metals, by R.R. Irving, and K. R. Moldt, Sept 7 p 37

JOHN CUNNINGHAM
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R. R. Irving, J. D. Baxter, Roger Lopata, A. M Greene and P. J. Cathey, Nov 11 p 53

FRANK T. CURTAIN
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

CUTTING TOOLS
Coherent Enters Laser Metal Cutter Market, Dec 28 p 18
Hefty Boost in June Machine Tool Orders, Aug 3 p 17
Machine Tool Orders Fell Sharply in May, July 15 p 16
Machine Tool Orders Rose in October, Dec 16 p 13
North American Sets Foot in Metalworking Industry, by R. E. Harvey, Aug 12 p 75

CYANIDE
Nitriding Conquers Its Cyanide Problems, July 6 p 95

CYCLOPS CORP.
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R. J. Regan, Nov 11 p 41

CYPRUS MINES CORP.
Oil Companies Prowl the Merger Jungle, July 27 p 82

D

STANLEY DAHL
EDM Growth in U. S. Yet to be Realized, July 27 p 21

DANA CORP.
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

JOHN DANFORTH
The Urge to Merge: The Climate Seems to Be Ripe, by E. W. Bowers, Sept 5 p 30

DANLY MACHINE CORP.
Ogden to Purchase Danly Machine Corp., July 6 p 22

DARATECH ASSOCIATES
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

SAMUEL I. DASTIN
Composites Force Their Growth Rate by Performance, by C. T. Post, Dec 7 p 57

DATA GENERAL CORP.
Board Level Computers: Building Blocks for Industrial Control, by A.M. Green, Aug 24 p 67
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

DATA PROCESSING SYSTEMS
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

DATA RESOURCES, INC.
Quarterly Forecast—Will Reaganomics Get a Chance to Work? by J.D. Baxter, Oct 5 p33

RICHARD L. DAVIES
Silver Production Up in Indifferent Market, July 6 p 121

ETIENNE DAVIGNON
Adhere to TPM, Baldrige Warns Europeans, Oct 5 p 16
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13
U. S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16

GRANT DAVIS
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

ROBERT R. DAVIS
Why is Dollar Strong in Currency Markets? Aug 24 p 49

RALPH M. DAVISON
Why Chromium is the Most Critical of All Metals,by R.R. Irving, and K. R. Moldt, Sept 7 p 37

DAYCO CORP.
Abuse Threatens Status of IRB Tax Exempts, by E. W. Bowers, Oct 14 p 55

DECARBURIZING
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1

DECISION MAKING
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J. D. Baxter, Nov 2 p 43
Line Managers Move from MIS to DSS for Decision-Making Help, by J. D. Baxter, Sept 28 p 71

DECISION SUPPORT SYSTEMS
Line Managers Move from MIS to DSS for Decision-Making Help, by J. D. Baxter, Sept 28 p 71

PAUL D. DEELEY
Book Review- Ferrous Metallurgy in a Nutshell, Sept 7 p 139

DEERE & CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p77
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p71
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
Troubles Still Plague Construction Equipment by K.W. Bennett, Dec 16 p 37

DEFENSE
. . . But Reagan's B-1 Decision Will Provide Work for Aerospace, Oct 14 p 17
Can U. S. Shipyards Handle 600-Ship Navy? by P. J. Cathey, July 27 p 48
Confusion Surrounds Proposed Defense Cuts, Sept 16 p 13
Consult Us on B-1, Congress Warns Reagan, July 27 p 15
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
Machine Tools Crucial to National Security, Oct 5 p 13
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
The Nation's Military Industrial Complex May Not be Complex Enough, by E. W. Bowers, Nov 2 p 49
Northrop Gets Contract for Stealth Bomber, Nov 2 p 29
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R. R. Irving, J. D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
U.S. Defense Industries are in Trouble, Congress is Told. . . .Oct 14 p 17
Will Defense Spending be Inflationary? Sept 7 p35
XM-1 Can't Shake Its Shortcomings, Dec 7 p 21

WILLIAM J. DE LANCEY
AISE Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Air/Water Clean-Up Costs Stunt Steel's Growth, by P.J. Cathey, Sept 7 p MP-55
Republic Regroups Its Energy Businesses, Dec 7 p MP-3
Steel at Crossroads-But in Better Shape, by P.J. Cathey, Aug 3 p 41
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Industry's on the Road Back, AISI Says, July 7 p 21
Steel Leery of European Import Restraint, Dec 28 p 13
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35

W. EDWARDS DEMING
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59
What One Expert Says About Our Product Quality, by R.R. Irving, July 15 p 49

HELEN DENNIS
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

A. T. DEQUITTER
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13

JAMES C. DESOLLAR
Automation Technologies Merge In Manufacturing, July 27 p 21

DESULFURIZING
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9
Low Sulfur Steel Plates, Nov 2 p MP-46

DeVILBISS CO.
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 15

DeVLIEG MACHINE CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

E. M. DE WINDT
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

DIESEL ENGINES
Harvester to Build Diesels for Ford, Oct 5 p 16

RICHARD H. DIETZ
Boston Digital Unveils New Turning Machine, July 15 p 20

DIRECT REDUCTION
AISE Notes: Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

DIRECT REDUCTION CORP.
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

W. F. DISTLER
Climax Reduces Its Molybdenum Production, Sept 28 p 116

DIVERSIFICATION (INDUSTRIAL)
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53
Lukens to Diversify as Part of Long-Range Plan, Dec 7 p 17
U.S. Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14

KENNETH W. DOAK
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

F. W. DODGE CORP.
Building Blahs Linger, Aug 24 p 50
Building Contracts Off, July 27 p 44
Building Contracts Stable, But Low, Oct 26 p 76
Construction Hitting Rock Bottom? Dec 28 p 68
Construction Keeps Dropping, Sept 16 p 84

DOFASCO, INC.
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

H. H. DOLAN
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

PATRICK DOLAN
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45

F. RAYMOND DONOVAN
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

VINCENT E. DORMAN
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

DOUGLAS AIRCRAFT CO.
Composites Force Their Growth Rate by Performance, by C. T. Post, Dec 7 p 57

CHARLES STARK DRAPER LABORATORY, INC.
Flexible Manufacturing: More Companies Make Competition Intense, by R. J. Larsen, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, by R. J. Larsen, Sept 7 p 82
Researchers Spread News of Flexible Manufacturing, by R.J. Larsen, Sept 7 p 99

WILLIAM H. DRAPER
Ex-Im Bank Ends Five-Month Moratorium, Sept 7 p 19
U.S. Pressures French on Export Subsidies, Oct 5 p 18

DRAVO CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, B.H. LeCerf, Sept 7 p MP-7
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7
Technology's Input is Vital to Sound Business Planning, P.J. Cathey, Sept 16 p 43
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

DRESSER-CLARK DIV.
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

DREXEL, BURNHAM AND LAMBERT, INC.
Is'Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45

DRILLING
Hughes Tool Strikes a Growth Gusher in the Oil Country, by S.T. Parker, Sept 7 p 65
Oilfield Demand Poses Problems for Suppliers, Oct 14 p 25

DRIVE SYSTEMS
Is the Auto Industry's Front Wheel Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35

DROOP & REIN WERKZEUGMASCHINENFABRIK
Import Flood Sparks a Wave of R & D at European Show, R.J. Larsen, Nov 2 p 81

PETER F. DRUCKER
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

DUCOMMUN METALS CO.
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
Profits are Down for West Coast Centers, Sept 28 p 119
Summer Softness Seeps into Service Centers, Aug 24 p 131

G. JAMES DUNLAP
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Thinking the Labor Out of Manufacturing at Cincinnati Milacron, Sept 28 p 104

DUNSWART IRON AND STEEL WORKS, LTD.
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

E. I. DU PONT DE NEMOURS & CO.
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

DURABLE GOODS
Autos Blamed for Retail Sales Slump, Dec 7 p 108
Retail Sales Show Weakness, Sept 28 p 132

DUST
Bethlehem Steel Makes Environmental Changes, July 6 p MP-5

DUVAL CORP.
Copper Price Hedging Follows Output Dip, Dec 16 p 76
Oil Companies Prowl the Merger Jungle, July 27 p 82

E

ECD, INC.
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49

ESAB, INC.
ASEA and ESAB Aim at U.S. Robot Market, Sept 28 p 29
Computers Draw a Bead at Essen Welding Show, by R.R. Irving, Oct 26 p 17
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

EAGLE SIGNAL INDUSTRIAL SYSTEMS DIV.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

J. E. EAKIN
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

EASTERN METAL MILL PRODUCTS CO.
Copper, Brass Centers Recover in September, Oct 5 p 112

SAMUEL EASTMAN CO., INC.
Eastman 'Invests' in Micromelt Casting Co., Oct 5 p MP-5

EATON CORP.
As Barter Business Booms, Some Firms Miss the Boat, by Roger Lopata, Oct 14 p 45
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

RALPH D. EBBOTT
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

A. KEITH EBERSOLE
AMC Turns to France for Parts for Its Front-Wheel-Drive Renaults, by B.H. Berry, Aug 3 p 19

OTTO ECKSTEIN
Quarterly Forecast—Will Reaganomics Get a Chance to Work? by J.D. Baxter, Oct 5 p 33

NORRIS ECKSTROM
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

ECONOMICS
Are They Just Fed Up with the Fed? by Gene Beaudet, Sept 28 p 7
Are We Expecting Too Much, Too Soon? by Gene Beaudet, Oct 5 p 7
Are You Ready to Give Up, by Gene Beaudet, Sept 16 p 7
Autos Blamed for Retail Sales Slump, Dec 7 p 108
Before Things Rise, Something Must Fall, by Gene Beaudet, Sept 7 p 7
Business in 1982: Who's Got the Answers? by Gene Beaudet, Dec 28 p 7
But Are We Building Anything? by Gene Beaudet, Aug 3 p 7
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
Composite Index Signals Recession, Nov 23 p 148
Consumers Keep Faith, July 15 p 34
Ex-Im Bank Ends Five-Month Moratorium, Sept 7 p 19
Expansion Due in 1982-83 Period? Sept 16 p 84
Flash! There's More to the News than Bad News! by Gene Beaudet, Dec 7 p 7
GNP Drops in Third Quarter, Nov 11 p 100
GNP Off 1.6 Pct. in 2nd Quarter, Oct 14 p 116
HSI: Cautious Forecast for '82, by L.R. Goldwater, Dec 7 p MP-23
If Inflation Eases, Will Interest Rates? Dec 16 p 29
Indicators Sour, July 27 p 44
Indicators Take Fall, Aug 24 p 50
Inflation-Cooling Carries a High Price Tag, Sept 7 p 43
Inflation Just Keeps Rolling Along, Sept 16 p 84
Inflation Pace Begins to Moderate, Dec 16 p 92
It Now Depends On Us, by Gene Beaudet, Aug 24 p 7
It's Now Catch 22 Finance, Says Kaufman, Nov 2 p 41
Labor Displeased with New Inflation Index, Nov 11 p 21
Leading Indicators Down Again, Sept 28 p 132
Now About the Fat, Dumb and Happy.... by Gene Beaudet, Oct 26 p 7
Optimism Undaunted, Aug 24 p 50
Plant Use Down; Steel to Blame, Nov 11 p 100
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Quarterly Forecast—Will Reaganomics Get a Chance to Work? by J.D. Baxter, Oct 5 p 33
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Sales Can't Compete with Inflation, Nov 2 p 132
Shake Well Before Using, by Gene Beaudet, Nov 2 p 7
Slight GNP Rise is Deceptive, Dec 16 p 92
Steel Returns Economist's Blast with One of Its Own, Aug 3 p 15
Talking Business, Oct 14 p 58
The ax Package: What It Does, What It Doesn't, by Roger Lopata, Sept 7 p 45
There's Good News—But Don't Haul Down the Storm Flags Yet, Nov 2 p 61
The Waiting Game is Over—Now What? Aug 24 p 56
Warding Off Prophets of Gloom,by Gene Beaudet, Dec 16 p 7
Well, It Is Hard to Believe, by Gene Beaudet, Nov 11 p 7
Were They Wrong for Chiding Business? by Gene Beaudet, Oct 14 p 7
Wharton's View: Record Deficits, No Recession, Oct 26 p 23
What Ever Happened to Pent-Up Demand? by Gene Beaudet, Nov 23 p 7
What So Proudly We Hailed, by Gene Beaudet, July 6 p 7
Why is Dollar Strong in Currency Markets? Aug 24 p 49
Why this Change of Heart? by Gene Beaudet, Aug 12 p 7
Will Big Wage Hikes Rekindle Inflation? July 27 p 41
Will Defense Spending be Inflationary? Sept 7 p 35
World Economic Growth Will be Limited, Nov 11 p 33
Would You Believe a Long, Hot Winter? by Gene Beaudet, July 27 p 7

ECONOMIST INTELLIGENCE UNIT LTD.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

EDGCOMB METALS CO.
Centers Hurt, Not Helped by TPM, Nov 11 p 88
Chicago Service Centers Keep Things Moving, July 15 p 75
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93
Distributors Step Up Modernization Program, Nov 2 p 117

EDGCOMB STEEL IN NEW ENGLAND, INC.
New England Centers Have Inventory Woes, Sept 7 p 173

EDGEWATER STEEL CO.
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

JAMES B. EDWARDS
DOE Awards Its Final Synfuel Grants, Aug 24 p 20
Reagan Puzzles Synfuels Industry, Halts Feud, Aug 12 p 17
Reagan Says No Funds for Alaska Pipeline, Nov 11 p 24

JAMES A. EGBERT
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

E. F. EGERER
Summer Softness Seeps into Sevice Centers, Aug 24 p 131

EISEN & HAMMERWERK GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

ELB-SCHLIFF EDMUND LANG
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

KENNETH ELBAUM
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67

ELECTRIC ARC FURNACES
Armco Starts Operation of Electric Arc Furnace, Sept 7 p MP-3

ELECTRIC BOAT DIV.
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48
Electric Boat to Hasten Submarine Deliveries, Aug 24 p 21

ELECTRIC DISCHARGE MACHINING
EDM Growth in U.S. Yet to be Realized, July 27 p 21

ELECTRIC FURNACES
Dry Mix Materials Used to Reline Runners, Sept 7 p MP-5
Electric Furnaces Debut at Johnstown, Nov 2 p MP-7
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

ELECTRIC MOTORS
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

ELECTRIC POWER PRODUCTION
Computerized Machine Checks Parts Fast, Sept 16 p 64

ELECTRIC RESISTANCE BOILERS
Electric Resistance Boilers, Nov 2 p MP-50

ELECTRIC VEHICLES
GE/DOE "Hybrid" Auto Nears Countdown, Sept 16 p 64

ELECTRODES
Electrodes Plant Debuts at Ozark, Arkansas, Dec 7 p MP-3

ELECTRONIC DEVICES AND CONTROLS
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

ELECTRONIC INDUSTRIES ASSN.
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

ELECTRONICS
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, by C.T. Post, Nov 2 p 63
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

ELECTROSLAG REFINING
Republic Brings On Line Electroslag Refining Unit, July 6 p MP-3

ELETTRONIA SAN GIORGIO (ELSAG) S.p.A.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

ELMA-TEKNIK GmbH
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

EL PASO CO.
Two Texas Pipelines Receive a Go-Ahead, Aug 3 p 20

KEITH ELWICK
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

PAUL ELY
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

FRANK EMLEY
Research Firm Studies Metal Powder Rolling, Sept 7 p MP-3

EMPLOYMENT
Consumers Loosing Confidence, Oct 14 p 116
Consumers Pessimistic About Jobs, Dec 7 p 108
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22
Help Wanted: Need More Jobs, Nov 23 p 148
Jobless Rate Climbs Still Higher, Dec 28 p 68
Jobless Rate Rises to 8 Million, Oct 26 p 76
Look Who's Being Cut Out of Top Jobs in the U.S., by S.T. Parker, Aug 3 p 35

ENDURO DIV.
Republic Brings On Line Electroslag Refining Unit, July 6 p MP-3

ENERCON, INC.
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

ENERGY
Efficient Boilers Could Yield Huge Savings, Sept 16 p 70
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127
Lukens to Diversify as Part of Long-Range Plan, Dec 7 p 17
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52
Republic Regroups Its Energy Businesses, Dec 7 p MP-3
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

ENERGY-ADAPTIVE CONTROL GRINDING, INC.
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

JOSEPH F. ENGELBERGER
The Trend in Robots is Up-and That's the Truth, Aug 24 p 25

ENGINEERING
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

ENGINEERS
Steel Quality Starts with Recruitment of Talented Engineers, by G.J. McManus, Sept 7 p MP-33

ENGINES
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

FRED ENGLISH
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57

ENTERTAINMENT
Cutting Travel and Entertainment Expense Down to Size, by P.J. Cathey, Nov 23 p 65

ENVIRONMENT
Air/Water Clean-Up Costs Stunt Steel's Growth, by P.J. Cathey, Sept 7 p MP-55
Is Clean Air a Case Of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9

ENVIRONMENTAL AFFAIRS, INC.
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

ENVIRONMENTAL PROTECTION AGENCY
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51
EPA Head Says Agency Makes Its Own Delays, July 6 p 22
EPA Piling Paperwork on Business, Sept 28 p 17
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9
Reagan Proposals Would Ease Pollution Restrictions, Dec 7 p 41
Reagan Will 'Guide' Clean Air Act Revamp, by E.W. Bowers, Aug 24 p 17
Revise Clean Air Act, Says EPA Head, July 15 p 19

ENVIRONMENTAL RESEARCH AND TECHNOLOGY, INC.
White House to Seek Clean Air Act Changes, Aug 12 p 13

DONALD E. EPHLIN
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41

FRANK A. ERDMAN
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

ERICKSON CORP.
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

RICHARD ERICKSON
Nitriding Conquers Its Cyanide Problems, July 6 p 95

C. M. ETCHEGARAY
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53

EUCLID, INC.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

EUROPE
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Steel Summary: Import Issue Heats Up., Europeans Want Out on TPM, by G.J. McManus, Aug 3 p 70

EUROPEAN COMMITTEE FOR COOPERATION OF THE MACHINE TOOL INDUSTRIES
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

EUROPEAN ECONOMIC COMMON MARKET
Adhere to TPM, Baldrige Warns Europeans, Oct 5 p 16

EUROPEAN ECONOMIC COMMUNITY
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56
Steel Leery of European Import Restraint, Dec 28 p 13
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16
Warding Off Prophets of Gloom, by Gene Beaudet, Dec 16 p 7

ERNEST EVANS
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

EVELETH MINES CO.
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67

WALTER EVERSHEIM
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

EX-CELL-O CORP.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Machine Tool Demand Will Improve, Exec Says, Nov 2 p 26
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

EXECUTIVES
Executives Hold the Cheers and Prices-and Profits-Cool, Sept 28 p 49
Look Who's Being Cut Out of Top Jobs in the U.S., by S.T. Parker, Aug 3 p 35
Mining Execs Got Biggest Hikes in '80, Dec 16 p 29
Tongue-Tied U.S. Execs Inflict Toll on Trade, by K.R. Moldt, July 6 p 75

EXHIBITS
Cleveland May be Site for New Tool Show, Sept 28 p 25
Computers Draw a Bead at Essen Welding Show, by R.R. Irving, Oct 26 p 17
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

EXIDE CORP.
Inco ElectroEnergy Put Up for Auction, Dec 28 p 16

EXIDE ELECTRONICS CORP.
Inco ElectroEnergy Put Up for Auction, Dec 28 p 16

EXPORT-IMPORT BANK
Ex-Im Bank Ends Five-Month Moratorium, Sept 7 p 19
Ex-Im Bank Faces Problems, Says GAO, July 27 p 19
U.S. Pressures French on Export Subsidies, Oct 5 p 18

EXPORTS
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Technology Exports to USSR Reviewed, Oct 5 p 18
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13
U.S. Aluminum Exports to Japan in Trouble, Nov 11 p 85
U.S Pressures French on Export Subsidies, Oct 5 p 18
Why don't U.S. Firms Export More? Oct 26 p 23

F

FMC CORP.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

ROBERT FAGLEY
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52

FALCONBRIDGE NICKEL MINES LTD.
Nickel Demand Will Rise, If Interest Rates Fall, Sept 7 p 171

RALPH A. FALK
Justice, Commerce Act on Steel Imports, July 15 p 16

FARM EQUIPMENT
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71
IH to Sell Combine Technology to Soviets, Dec 16 p 17
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

FASTENERS
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3
Fastener Makers Seek Duty Extension, July 15 p 19
ITC Asked to Extend Fastener Protection, Sept 28 p 17
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

BERNARD FEATHERMAN
Service Centers Oppose Trade Zone Proposal, July 6 p 122

FEDERAL EMERGENCY MANAGEMENT AGENCY
Amax Wants Federal Aid for Cobalt Project, Nov 23 p 24

FEDERAL HIGHWAY ADMINISTRATION
FHWA Makes U-Turn on Galvanized Rebar, Oct 5 p 19

FEDERAL HOME LOAN MORTGAGE CORP.
Home Construction Still in the Cellar, Sept 7 p 196

FEDERAL RESEVE BOARD
Are They Just Fed Up with the Fed? by Gene Beaudet, Sept 28 p 7
Auto Credit Raises Consumer Debt, Oct 26 p 76
Factory Operating Rate Static, Sept 7 p 196
Factory Output Drops Sharply, Nov 2 p 132
Factory Output Drops Sharply, Oct 5 p 132
Housing Starts Plunge 10.7 Pct., Oct 5 p 132
If Inflation Eases, Will Interest Rates? Dec 16 p 29
Indicators Sour, July 27 p 44
Plant Use Dips Lower: Steel Mills Hit, Dec 7 p 108
Plant Use Down; Steel to Blame, Nov 11 p 100
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Shake Well Before Using, by Gene Beaudet, Nov 2 p 7
Talking Business, Oct 14 p 58
Would You Believe a Long, Hot Winter? by Gene Beaudet, July 27 p 7

FEDERAL TRADE COMMISSION
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51

FEDERAL UNIVERSITY OF RIO DE JANEIRO
IISI: Cautious Forecast for '82, by L.R. Goldwater, Dec 7 p MP-23

FEINSCHREIBER & ASSOCIATES
R & D Tax Credits Need a Close Look, Nov 23 p 56

FERROALLOYS ASSN.
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13

M. G. FEY
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

FIAT-ALLIS CONSTRUCTION MACHINERY, INC.
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

FIBER OPTICS
Fiber Optics Helps Control Critical Welding Operations, by R.R. Irving, Oct 14 p 83

FIBERITE CORP.
Composites Force Their Growth Rate by Peformance, by C.T. Post, Dec 7 p 57

LOUIS FIELD
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

JOHN C. FILIPPINI
Justice to Apply 'Rule of Reason' to Anti-Trust, Oct 5 p 13

FINANCE
Abuse Threatens Status of IRB Tax Exempts, by E.W. Bowers, Oct 14 p 55
As Prime Goes Up, Bill Paying Goes Down, Aug 12 p 36
Auto Credit Raises Consumer Debt, Oct 26 p 76
Business Inventories Climb in July, Sept 28 p 132
Consumers Loosing Confidence, Oct 14 p 116
Credit Managers Face Double Dilemma, Aug 24 p 49
GNP Drops in Third Quarter, Nov 11 p 100
Gray: Reinvestment is Key to U.S. Competetive Edge, Nov 23 p 57
Healthy Rise for Personal Income, Oct 5 p 132
How Big Companies Care for Boards, July 15 p 33
How Briggs & Stratton Combats Inflation, Oct 14 p 36
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J.D. Baxter, Nov 2 p 43
If Inflation Eases, Will Interest Rates? Dec 16 p 29
Income Gets a Summer Bonus, Sept 7 p 196
Income Inches Ahead, July 15 p 34
Is Corporate Liquidity Being Overrated? Sept 16 p 42
Major Merger Mania Busting Out All Over, Aug 12 p 36
National Steel Acquires Two S&L Institutions, Sept 28 p 115
Piersol Pine Cuts Corners without Cutting Quality, by Roger Lopata, Oct 14 p SP-11
Purchasers Troubled by High Interest Rates, Sept 28 p 20
Sales Can't Compete with Inflation, Nov 2 p 132
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41
Steel Summary: Summer Slump Bottoms Out, by G.J. McManus, Aug 12 p 84
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30
USS Ups Credit Lines by $3 Billion, Aug 12 p 84
Ways Small Companies Can Reduce Borrowing, Aug 3 p 31
Why is Dollar Strong in Currency Markets? Aug 24 p 49
Why this Change of Heart? by Gene Beaudet, Aug 12 p 7

DANIEL F. FINE
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63

ROBERT J. FINGLAND
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

FINANCIAL ACCOUNTING STANDARDS BOARD
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

FIRST BOSTON CORP.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

WALTER FISHER
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

WILLIS FISHER
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

FISHER BODY DIV.
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

FITTINGS
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73

DAVID J. FITZMAURICE
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

FLAME CUTTING
Ryerson Spends Big to Expand at Houston, Nov 11 p 88

MERTON FLEMINGS
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

FLEXIBLE MANUFACTURING SYSTEMS
Caterpillar Takes the Lead in the Use of Flexible Manufacturing, by R.J. Larsen, Sept 28 p 96
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Researchers Spread News of Flexible Manufacturing, by R.J. Larsen, Sept 7 p 99
Thinking the Labor Out of Manufacturing at Cincinnati Milacron, Sept 28 p 104

FLORIDA STEEL CORP.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

FLUID POWER SYSTEMS
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

FLUIDIZED BED COMBUSTION
TVA Plant Will Test Fluid Bed Process, Oct 5 p 21

FLUIDIZED BED PROCESSORS
Fluid Bed's Benefits, Nov 2 p MP-32
Kaiser-Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
TVA Plant Will Test Fluid Bed Process, Oct 5 p 21

FLUIDIZED IRON ORE REDUCTION
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20

J. ROBERT FLUOR
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28

FLUOR CORP.
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28

FLUOR DISTRIBUTION CO.
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28

FORD MOTOR CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Autoworkers Adapting to New Workstyles, Nov 11 p 19

Bendix Stamps Axles for New Ford Trucks, Aug 24 p 19
Come Join Us in Latin America, Says Ford, Aug 24 p 19
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
Harvester to Build Diesels for Ford, Oct 5 p 16
Is the Auto Industry's Front Wheel Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59
Price Incentive Spur Summer Auto Sales, Sept 16 p 19
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

FORECASTING
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Aluminum Output Won't Match 1980 Record, Oct 14 p 93
Are You Ready to Give Up, by Gene Beaudet, Sept 16 p 7
Business in 1982: Who's Got the Answers? by Gene Beaudet, Dec 28 p 7
Construction Keeps Dropping, Sept 16 p 84
CPI Up 0.8 Pct.; Housing Cost Ease, Oct 14 p 116
Consumers Loosing Confidence, Oct 14 p 116
Consumers Pessimistic About Jobs, Dec 7 p 108
Detroit Will Demand More Aluminum Castings, Nov 2 p 21
Do Rising Stocks Signal a Further Fall in Orders? Nov 23 p 49
Domestic Steel Growth Will be Slow, OTA Says, Sept 7 p MP-3
Expansion Due in 1982-83 Period? Sept 16 p 84
Factory Operating Rate Static, Sept 7 p 196
Future Copper Output Should Match Demand, July 6 p 120
GM Chairman Forecasts Healthier New Decade, July 6 p 22
GNP Off 1.6 Pct. in 2nd Quarter, Oct 14 p 116
HSI: Cautious Forecast for '82, by L.R. Goldwater, Dec 7 p MP-23
Indicators Sour, July 27 p 44
Indicators Take Fall, Aug 24 p 50
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Foehring Foresees a Construction Recovery, July 15 p 24
Labor Outlook Grim for 1982, Dec 28 p 68
Leading Indicators Down Again, Sept 28 p 132
Lukens to Diversify as Part of Long-Range Plan, Dec 7 p 17
Machine Tool Demand Will Improve, Exec Says, Nov 2 p 26
Nickel Demand Revival Likely in '82, Dec 28 p 57
Outlook Good for Pellet, Sinter Plants Worldwide, Nov 2 p MP-3
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Quarterly Forecast—Will Reaganomics Get a Chance to Work? by J.D. Baxter, Oct 5 p 33
Reading Foresees Gain for Its OEM Subsidiary, Oct 14 p 26
Reagan's Nuclear Plan May Not be Needed, Nov 2 p 26
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Service Centers See More Action Ahead, Aug 12 p 89
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
Service Centers See Smaller Gains in 1982, Dec 28 p 58
Steel Returns Economist's Blast with One of Its Own, Aug 3 p 15
There's Good News—But Don't Haul Down the Storm Flags Yet, Nov 2 p 61
There's Moderate Optimism About Sales in '82, Dec 16 p 79
Warding Off Prophets of Gloom, by Gene Beaudet, Dec 16 p 7
Wharton's View: Record Deficits, No Recession, Oct 26 p 23
What are the Prospects for an American EEC? July 15 p 33
What Can Small Business Expect from Washington? by E.W. Bowers, Oct 14 p SP-1
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25
Will Capital Spending in '81 Reach Its Goal? Oct 14 p 36
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58
Will Defense Spending be Inflationary? Sept 7 p 35
Will Steel Spending Plans Stay on Track? by Gene Beaudet, Oct 5 p 7
World Economic Growth Will be Limited, Nov 11 p 33

FOREIGN CORPORATIONS
Look Who's Being Cut Out of Top Jobs in the U.S., by S.T. Parker, Aug 3 p 35

FOREIGN INVESTMENTS
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
W. Germans Have Most Foreign Plants in U.S., Nov 2 p 41

FOREIGN LANGUAGES
Tongue-Tied U.S. Execs Inflict Toll on Trade, by K.R. Moldt, July 6 p 75

FOREIGN TRADE
Adhere to TPM, Baldrige Warns Europeans, Oct 5 p 16
As Barter Business Booms, Some Firms Miss the Boat, by Roger Lopata, Oct 14 p 45
Gov't Fears Trade War if TPM is Lost, by E.W. Bowers, Dec 7 p 19
Hedge Overseas Bets with Risk Insurance, by P.J. Cathey, Aug 12 p 33
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36
Kubota Takes Aim at Its U.S. Markets, Nov 23 p 129
Reagan Administration 'White Paper' Favors Free Trade Policy, July 27 p 19
Reagan Nixes North American Trade Group, Sept 7 p 15
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Service Centers Oppose Trade Zone Proposal, July 6 p 122
Some Cliches and Questions About Trade, by Gene Beaudet, Dec 7 p 7
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? by E.W. Bowers, Aug 24 p 34
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Trade Deficit Declined $5.6 Billion in August, Oct 14 p 23
Trade Deficit Slumps to $2.6 Billion, Nov 23 p 17
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13
Trade Shortfall Deepens Further in October, Dec 16 p 13
Trade Zone Proposed on U.S.-Mexican Border, Aug 12 p 21
U.S. Aluminum Exports to Japan in Trouble, Nov 11 p 85
U.S. Pressures French on Export Subsidies, Oct 5 p 18
What are the Prospects for an American EEC? July 15 p 33
Why Don't U.S. Firms Export More? Oct 26 p 23

FORGING INDUSTRY
Forgers Wait for 'Inevitable', Sept 28 p 20

FORGING INDUSTRY ASSN.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
Forgers Wait for 'Inevitable', Sept 28 p 20

FORGINGS
Flashless Warm Forming Whips Up Quality Parts, Oct 5 p 93
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127
Ladish Buy Considered Coup for Armco, Aug 3 p MP-3
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

FORTUNA-WERK MASCHINENFABRIK GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

JOHN B. FOSTER
Ryerson Spends Big to Expand at Houston, Nov 11 p 88
There's Moderate Amount Optimism About Sales in '82, Dec 16 p 79

RAYMOND FOSTER
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

CHARLES FOUNDYLLER
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

FOUNDRY INDUSTRY
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39
The Inred Process: an Ironmaking Option, by R.R. Irving, July 6 p MP-21
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

FOUR-WHEEL-DRIVE SYSTEMS
Is the Auto Industry's Front-Wheel-Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35

FRANCE
AMC Turns to France for Parts for Its Front Wheel Drive Renaults, by B.H. Berry, Aug 3 p 19
U.S. Pressures French on Export Subsidies, Oct 5 p 18

FRANKLIN RESEARCH CENTER
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

DOUGLAS A. FRASER
Fraser: Give Us Jobs and We'll Do the Job, Sept 28 p 13
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
UAW Opens the Door to Renegotiation, Dec 28 p 13
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

JOHN MALCOLM FRASER
For Aluminum, It's a Wide, Wide World, July 27 p 82

JOSEPH R. FRAZIER
GE Forms Venture to Market CAE Software, Nov 23 p 26

AUDREY FREEDMAN
Labor Outlook Grim for 1982, Dec 28 p 68

GERALD C. FREEMAN
Caterpillar Takes the Lead in the Use of Flexible Manufacturing, by R.J. Larsen, Sept 28 p 96
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

RICHARD H. FREEMAN
FHWA Makes U-Turn on Galvanized Rebar, Oct 5 p 19

FREIGHT CARS
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

FREIGHT RATES
Rail Rates Lowered for Nonferrous Scrap, Nov 2 p 114

C. L. FRENCH
U.S. Defense Industries are in Trouble, Congress is Told..., Oct 14 p 17

FRERE-BOURGEOIS (USA), INC.
Steel Leery of European Import Restraint, Dec 28 p 13

PHILIP K. FRICKE
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

LEONARD FRUCHTMAN
Central Steel Adds to Oil Country Capacity, Oct 5 p MP-3

FRUEHAUF MOTORS CORP.
Fruehauf Lightens Load over the Long Road, Nov 2 p 31

DAVID FUCHS
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

FUJITSU FANUC LTD.
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

ROBERT FULLER
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

FULLERTON METALS CO.
There's Moderate Optimism About Sales in '82, Dec 16 p 79

FURNACE LINERS
Dry Mix Materials Used to Reline Runners, Sept 7 p MP-5
Module Linings Fashion Savings, Nov 2 p MP-25
Relining Furnaces by Dry-Mix Refractories, Nov 2 p MP-36

FURNACES
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
Energy-Efficient Retort, Nov 2 p MP-30
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

G

GCA CORP.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

GALVALUME
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

GALVANIZING
Bethlehem Steel Improves Galvanizing, Sept 7 p MP-1
FHWA Makes U-Turn on Galvanized Rebar, Oct 5 p 19
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73

ROBERT J. GANN
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114

DAVID GARDINER
Cerro Metal Plans Brass Rod Expansion, July 6 p MP-3

GAS RESEARCH INSTITUTE
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

GAS TURBINES
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

GATE CITY STEEL CO.
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3

HARLEY GAUKER
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

EDSON I. GAYLORD
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

GEARS
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast —Is the Outlook Still a Toss of the Coin? July 6 p 39

ROBERT E. GEE
Technology's Imput is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

JOHN A. D. GEIER
The Trend in Robots is Up—and That's the Truth, Aug 24 p 25

GENERAL ACCOUNTING OFFICE
Conversion to Coal is Doing Nicely, Says GAO, Oct 5 p 109
EPA Piling Paperwork on Business, Sept 28 p 17
GAO: U.S. isn't Ready for Another Oil Crunch, Oct 26 p 17
Ex-Im Bank Faces Problems, Says GAO, July 27 p 19

GENERAL AUTOMATION CORP.
General Automation Tries a New Approach to Software, Nov 23 p 82

GENERAL DYNAMICS CORP.
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

GENERAL ELECTRIC CAE INTERNATIONAL, INC.
GE Forms Venture to Market CAE Software, Nov 23 p 26
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56

GENERAL ELECTRIC CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Australians to Buy F/A 18 Fighter Plane, Nov 11 p 24
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
GE/DOE "Hybrid" Auto Nears Countdown, Sept 16 p 64
GE Expands Functions of Its Series 6 PC, Oct 14 p 26
GE Forms Venture to Market CAE Software, Nov 23 p 26
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J.D. Baxter, Nov 2 p 43
Management in America—Reshaping the Vision—Rebuilding Competitive Strength, by Michael Marley, Aug 3 p 43
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Nitriding Conquers Its Cyanide Problems, July 6 p 95
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

GENERAL ELECTRIC INFORMATION SERVICES CO.
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76

GENERAL ELECTRIC CO. MICROELECTRONICS CENTER
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

GENERAL MOTORS CORP.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51
Detroit Wants Changes in Clean Air Act, Oct 26 p 14
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Fall Usually Raises Car Sales, But Not this Year, by B.H. Berry, Oct 26 p 13
GM Chairman Forecasts Healthier New Decade, July 6 p 22
GM: Materials Research Will Transform the Car, Sept 16 p 19
Is the Auto Industry's Front-Wheel-Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Management in America—Reshaping the Vision—Rebuilding Competetive Strength, by Michael Marley, Aug 3 p 43
Mini Car Market Blends GM and Suzuki, Sept 7 p 13
Pontiac's Plastic Car Likely to Use New SMC, Dec 28 p 17
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59
Price Incentive Spur Summer Auto Sales, Sept 16 p 19
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24
UAW Opens the Door to Renegotiation, Dec 28 p 13
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25
Workers Set to Buy Bearings Plant from GM, Nov 11 p 19

GENERAL MOTORS RESEARCH LABORATORIES
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34
GM: Materials Research Will Transform the Car, Sept 16 p 19

GENERAL MOTORS TRADING CORP.
As Barter Business Booms, Some Firms Miss the Boat, by Roger Lopata, Oct 14 p 45

GENERAL SIGNAL CORP.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

GENERAL STEEL CO.
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74

GENERAL STEEL INDUSTRIES, INC.
National Roll to Add Centrifugal Casting, Nov 2 p MP-7

GENICON INC.
Does Adaptive Control Still Promise Improved Productivity? by R.J Larsen, July 27 p 57

ROY A. GENTLES
Auto Slump Delays Alcan Expansion, July 6 p 119
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41

THOMAS P. GERRITY
Line Managers Move from MIS to DSS for Decision-Making Help, by J.D. Baxter, Sept 28 p 71

PETER GERSTEN
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

ROBERT GERSTENBERGER
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

JOHN H. GIBBONS
Domestic Steel Growth Will be Slow, OTA Says, Sept 7 p MP-3

GIDDINGS & LEWIS MACHINE TOOL CO., INC.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

JEAN-PAUL GIGNAC
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31

GILDEMEISTER AKTIENGESELLSCHAFT
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

JOHN E. GILMAN
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

GILMAN ENGINERRING AND MFG. CO.
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

WILLIAM GIMBEL
Profits are Down for West Coast Centers, Sept 28 p 119
Service Centers See Smaller Gains in 1982, Dec 28 p 58

STEPHEN A. GIRARD
Kaiser Will Shut Down Steelmaking Operations, Nov 23 p 20

GLASS
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Larsen, Nov 11 p 49

GLEN-GERY CORP.
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13

FRED E. GLICKMAN
R & D Tax Credits Need a Close Look, Nov 23 p 56

GLIDDEN CO.
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

A. B. GLOSSBRENNER
Steel Quality Starts with Recruitment of Talented Engineers, by G.J. McManus, Sept 7 p MP-33

D. F. GOETHE
Are Machine Tool Builders Cutting It With Industry? by Iron Age Editors, Aug 24 p 77

E. E. GOETTE
World Ironmaking: Everyone is Getting into the Act by G.J. McManus, Aug 3 p MP-5

ROBERT W. GOETTER
Why is Dollar Strong in Currency Markets? Aug 24 p 49

FRED GOLDING
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

GOLDMAN, SACHS & CO.
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

KENNETH GOLDSTEIN
Help Wanted: Need More Jobs, Nov 23 p 148

GERALD GORDON
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

RICHARD L. GORDON
Federal Agencies Blamed for Coal 'Monopoly', Sept 7 p 19

GORHAM INTERNATIONAL, INC.
Research Firm Studies Metal Powder Rolling, Sept 7 p MP-3

JAMES GORMAN
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

GORMAN-RUPP CO.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

ANNE M. GORSUCH
Clean Air Reform Sinks into the Congressional Mud, E.W. Bowers, Dec 7 p 41
EPA Head Says Agency Makes Its Own Delays, July 6 p 22
Reagan Will 'Guide' Clean Air Act Revamp, by E.W. Bowers, Aug 24 p 17
Revise Clean Air Act, Says EPA Head, July 15 p 19

JOHN W. GOTH
Climax Reduces Its Molybdenum Production, Sept 28 p 116

GOULD INC.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Reading Foresees Gain for Its OEM Subsidiary, Oct 14 p 26

GOVERNMENT
See Also: Individual Federal and State Department and Bureau
Are We Expecting Too Much, Too Soon? by Gene Beaudet, Oct 5 p 7
Are You Ready to Give Up, by Gene Beaudet, Sept 16 p 7
Before Things Rise, Something Must Fall, by Gene Beaudet, Sept 7 p 7
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
Gov't Fears Trade War if TPM is Lost, by E.W. Bowers, Dec 7 p 19
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31
National Minerals Policy Requires a Strong Boss, Dec 16 p 76
Now About the Fat, Dumb and Happy . . ., by Gene Beaudet, Oct 26 p 7
Reagan Administration 'White Paper' Favors Free Trade Policy, July 27 p 19
Reagan's Nuclear Plan May Not be Needed, Nov 2 p 26
Some Cliches and Questions About Trade, by Gene Beaudet, Dec 7 p 7
Well, It *Is* Hard to Believe, by Gene Beaudet, Nov 11 p 7
Were They Wrong for Chiding Business? by Gene Beaudet, Oct 14 p 7
What Can Small Business Expect from Washington? by E.W. Bowers, Oct 14 p SP-1
What So Proudly We Hailed, by Gene Beaudet, July 6 p 7
Why this Change of Heart? by Gene Beaudet, Aug 12 p 7
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

GOVERNMENT REGULATION
Clean Air Act Reform Unlikely Until Spring, Dec 28 p 16
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41
Detroit Wants Changes in Clean Air Act, Oct 26 p 14
EPA Head Says Agency Makes Its Own Delays, July 6 p 22
EPA Piling Paperwork on Business, Sept 28 p 17
Execs Rank Regulations, Costs Ahead of Quality, July 6 p 28
OSHA Finally Sets New Noise Level Rules, Sept 7 p 13
Reagan Proposals Would Ease Pollution Restrictions, Dec 7 p 41
Reagan Will 'Guide' Clean Air Act Revamp, by E.W. Bowers, Aug 24 p 17
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53
Revise Clean Air Act, Says EPA Head, July 15 p 19
Steel Gets Break on Clean Air Regulations, Aug 3 p 15
Thorne Auchter Ready to Give OSHA a New Look, by E.W. Bowers, Nov 23 p 43
U.S. Policies Impare Mining, Says Strauss, Nov 2 p 29
White House to Seek Clean Air Act Changes, Aug 12 p 13
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

GRAFFENSTADEN DIV.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

ROBERT C. GRAHAM
Come Join Us in Latin America, Says Ford, Aug 24 p 19

T. C. GRAHAM
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Calpro & Koppers Win Productivity Awards, Dec 7 p 46
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

P. J. GRANDY
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

LEE L. GRANT
Pontiac's Plastic Car Likely to Use New SMC, Dec 28 p 17

GRAPHIC TECHNOLOGY CORP.
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

ALLEN G. GRAY
Why Chromium is the Most Critical of all Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

HARRY J. GRAY
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19

JAMES A. GRAY
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Gray: Reinvestment is Key to U.S. Competetive Edge, Nov 23 p 57
Hefty Boost in June Machine Tool Orders, Aug 3 p 17
July Machine Tool Orders Disappointing, Sept 16 p 13
Machine Tool Orders Fell Sharply in May, July 15 p 16
Machine Tool Orders Rose in October, Dec 16 p 13
Machine Tool Orders Sagged in September, Nov 2 p 25
Machine Tool Orders Up 10 Pct. in August, Oct 5 p 13
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? by E.W. Bowers, Aug 24 p 34

JOSEPH M. GRAY
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

GREAT LAKES CARBON CORP.
Electrodes Plant Debuts at Ozark, Arkansas, Dec 7 p MP-3

PRESTON GREEN
Centers Hurt, Not Helped by TPM Nov 11 p 88
Distributors Step Up Modernization Program, Nov 2 p 117

ANTHONY GREENE
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

JOHN GREGORY
U.S. Steel Revamps No. 13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21

DONALD K. GRIERSON
GE Forms Venture to Market CAE Software, Nov 23 p 26
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56

W. T. GRIMM & CO.
Major Merger Mania Busting Out All Over, Aug 12 p 36
This Year is the Year of the Merger, Nov 23 p 40

WILLARD T. GRIMM
This Year is the Year of the Merger, Nov 23 p 40

GRINDING
Bethlehem to Install Billet Inspection System, Aug 3 p MP-3
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
New Process Runs Circles around Grinding, Oct 5 p 93
Norton Sees Big Market for New Grinding Wheel, Sept 7 p 19

WILLIAM GROBIN
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52

JOSEF GROSSE-WOERDEMANN
Shape Welding: A New Concept in Fabrication, by R.R. Irving, Nov 23 p 111

VINCENT GROSSE
How Can the 'Tech Mod' Improve Productivity by R.R. Irving, Aug 12 p 67

HANS H. GRUBE
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

GRUMMAN AEROSPACE CORP.
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

GRUMMAN FLEXIBLE CORP.
Grumman's New Bus is Return to Basics, Nov 2 p 29

GRUMMAN AEROSPACE CORP.
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47

GRUMMAN CORP.
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47

GRUPO INDUSTRIAL ALFA
World Ironmaking: Everyone is Getting into the Act by G.J. McManus, Aug 3 p MP-5

GULF FORGE CO.
Expanding Roles of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

GULF + WESTERN MFG. CO.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

Y. L. GUSTAFFSON
ASEA and ESAB Aim at U.S. Robot Market, Sept 28 p 29

ARTHUR W. GUTENBERG
Human Training Cuts Engineering Attrition, Dec 7 p 51
If Managers Don't Mix, Then Effective Decisions Don't Get Made, by C.T. Post, Dec 7 p 49

DONALD T. GUTHRIE
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

H

HMK INDUSTRIES, INC.
Armco Bids Goodbye to Re-Bar Manufacture, Sept 7 p 171

PAUL R. HAAS
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

WILLIAM HAAS
Chicago Service Centers Keep Things Moving, July 15 p 75
There's Moderate Amount Optimism About Sales in '82, Dec 16 p 79

CHARLES T. HAFFEY
Purchasers Report Few Gains in Output, Orders, Oct 14 p 21
Survey Finds Easing of Tight Inventory Policies, Dec 16 p 18

K. ROBERT HAHN
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, by C.T. Post, Nov 2 p 63

RICHARD HAIMBAUGH
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

ROBERT HAMILTON
Coated Abrasive Belts Get Stronger Backing, by J.J. Obrzut, Aug 3 p 59

WALTER HAMILTON
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

WILLIAM HAMILTON III
Copper, Brass Centers Recover in September, Oct 5 p 112

JOHN HAMM
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58

LLOYD HAND
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

HANNA MINING CO.
Steel Slump Brings Cut in Iron Ore Activity, Dec 7 p 88

FRANK HANNAH
Computers Draw a Bead at Essen Welding Show, by R.R. Irving, Oct 26 p 17

G. W. HANSEN
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14

NORBERT C. HARBERT
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

NORMAN C. HARBERT
Talking Business, Aug 12 p 45

HARNISCHFEGER CORP.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

JAMES HARRIS
Reagan 'Fully Supports' His Interior Secretary, Aug 24 p 17

RICHARD M. HARRIS
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3
Bethlehem Steel Improves Galvanizing, Sept 7 p MP-1

ROBERT HARRIS
Oilfield Demand Poses Problems for Suppliers, Oct 14 p 25

HARRIS BANK (CHICAGO)
Why is Dollar Strong in Currency Markets? Aug 24 p 49

HARRIS-THOMAS DROP FORGE CO.
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

GARY HART
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41

DONALD F. HASTINGS
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

HAUCK MFG. CO.
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

H. ALAN HAUSER
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109

HAWK BILT CO.
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

DENIS HAYES
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49

R. L. HEAD
Armco Hits a Gusher in Oil Country Sales, Nov 2 p 26

HEADCHANGERS
Import Flood Sparks a Wave of R & D at European Show,by R.J. Larsen, Nov 2 p 81

HEALTH PROGRAMS
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67
Lung Cancer Risk Low for Aluminum Workers, Nov 2 p MP-7

DAVID HEALY
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45

HEAT TREATING
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
Heat Treating Facility to Meet Tubing Demand, Sept 7 p MP-1
It's No Secret, Retrofitting a Forge Shop Can Save Money by K.W. Bennett, Sept 7 p 127
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
USS Ups Its Capacity to Heat Treat OCTG, Nov 2 p MP-3

HECKLER & KOCH MASCHINENUNDANLANGENBAU GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

RUSSELL A. HEDDEN
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

HERCULES CORP.
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57

HERR VOSS CO.
Service Centers See Smaller Gains in 1982, Dec 28 p 58

DONALD C. HERRSCHAFT
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

FRANK W. HESFORD
Automation Technologies Merge in Manufacturing, July 27 p 21

HESSISCHE APPARATBAU WERKZEUGMASCHINENBAU
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

HEWLETT-PACKARD CORP.
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

HEYWARD-ROBINSON CO.
Consolidated Contracts for Aluminum Plant, July 6 p MP-5

S. E. HIBBEN
Service Centers Oppose Trade Zone Proposal, July 6 p 122

JAMES HICKEY
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

WILLIAM HICKEY, JR.
Service Centers See More Action Ahead, Aug 12 p 89

HIGH STRENTH LOW ALLOYS STEELS
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

JOHN HILINSKI
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51

DAVID HILL
As Barter Business Booms, Some Firms Miss the Boat, by Roger Lopata, Oct 14 p 45

FRANK HILL
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

JIMMY HILL
USS Ups Its Capacity to Heat Treat OCTG, Nov 2 p MP-3

RICHARD M. HILL
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

HILL-ACME CORP.
Automation Technologies Merge in Manufacturing, July 27 p 21

STANLEY HILLER, JR.
Hiller Heads Group Seeking Kaiser Steel, Oct 5 p 111

DAVID HILLSTROM
There's Moderate Amount Optimism About Sales in '82, Dec 16 p 79

HITACHI SEIKI CO. LTD.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

WALTER HOADLEY
World Economic Growth Will be Limited, Nov 11 p 33

HOBART BROS. CO.
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

W. G. HOBSTETTER
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63

HOBSTETTER METALS CO.
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63

NICK HODGERS
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

VICTOR HOFFMAN
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29

PATRICK C. HOLDEN
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41

HARRY HOLIDAY
AISE Special Report: Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Armco Bids Goodbye to Re-Bar Manufacture, Sept 7 p 171
Armco Spends on Seamless Tube Expansion, Sept 7 p 165
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Summary: Slow Demand Cuts Shipments, Nov 11 p 85

LENHARD J. HOLSCHUH
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
IISI: Cautious Forecast for '82, by L.R. Goldwater, Dec 7 p MP-23

HONDA R & D CO. LTD.,
Nitriding Conquers Its Cyanide Problems, July 6 p 95

HONEYWELL INC.
Efficient Boilers Could Yield Huge Savings, Sept 16 p 70
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79

HONG-RUNG MACHINERY CO.
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

EDWIN M. HOOD
Can U.S. Shipyards Handle 600-Ship Navy? P.J. Cathey, July 27 p 48

HAROLD D. HOOPMAN
U.S. Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14

HOOVER INSTITUTION
World Economic Growth Will be Limited, Nov 11 p 33

BEN HOOYER
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

KARL-HEINZ HOPFNER
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

R. D. HORNBECK
U.S. is Not Vulnerable to Any Bauxite Cutoff, Dec 16 p 75

HOT ISOSTATIC PRESSINGS
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

HOUDAILLE INDUSTRIES, INC.
Coherent Enters Laser Metal Cutter Market, Dec 28 p 18

E. F. HOUGHTON & CO.
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

HOUSE OF STAINLESS
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3

HOUSING
CPI Up 0.8 Pct.; Housing Cost Ease, Oct 14 p 116
Consumers Pessimistic About Jobs, Dec 7 p 108
Construction Keeps Dropping, Sept 16 p 84
Consumers Losing Confidence, Oct 14 p 116
Home Building Slumps Further, Dec 16 p 92
Home Construction Still in the Cellar, Sept 7 p 196
Housing Costs Boost CPI, Nov 11 p 100
Housing Starts Decline, Nov 2 p 137
Housing Starts Plunge 10.7 Pct., Oc. 5 p 132
New Home Sales Hit All-Time Low, Nov 23 p 148
Well, It *Is* Hard to Believe, by Gene Beaudet, Nov 11 p 7

BERNARD HOWANIEC
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

NATHANIEL S. HOWE
Japan's New Target in U.S. - Machine Tools, Aug 12 p 15

C. D. HOWELL
Workers Set to Buy Bearings Plant from GM, Nov 11 p 19

J. D. HOWELL
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

HOWELL STEEL SERVICE, INC.
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101

WILLIAM HOWENSTEIN
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

HOWMET ALUMINUM CORP.
Copper, Brass Centers Recover in September, Oct 5 p 112
Howmet to Start Up Cold Rolling Mill, Sept 28 p 116
U.S. Pressures French on Export Subsidies, Oct 5 p 18

EVERETT HRUSKA
Expanding Roles of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

ANDREW HU
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67

HAROLD HUBBARD
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49

HUDSON INSTITUTE
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

HUGHES TOOL CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
Hughes Tool Strikes a Growth Gusher in the Oil Country, by S.T. Parker, Sept 7 p 65

HULLER HILLE WERKZEUGMASCHINEN GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

HUMOR
A Scrapbook of American Business Humor, Dec 28 p 27

JAMES HUNT
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

HUNTINGTON ALLOYS, INC.
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

HURCO MFG. CO., INC.
Hurco Enters the Big Time, by R.E. Harvey, Oct 14 p SP-14

HURRICANE INDUSTRIES, INC.
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13

P. T. HUTCHISON
World Ironmaking: Everyone is Getting into the Act by G.J. McManus, Aug 3 p MP-5

E. F. HUTTON & CO.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37;

HYATT CLARK INDUSTRIES
Workers Set to Buy Bearings Plant from GM, Nov 11 p 19

HYFIL, LTD.
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57

HYL IRON & STEEL TECHNOLOGY, INC.
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33

HYL (MEXICO)
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

HYSTER CO.
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

I

IC INDUSTRIES, INC.
AI Beats Out IC to Acquire Sunbeam, Nov 2 p 112
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53

IDA INDUSTRIES DIV.
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

INAMIC LTD.,
Hedge Overseas Bets with Risk Insurance, P.J. Cathey, Aug 12 p 33

IPE/CHESTON CO.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

LEE A. IACOCCA
What Ever Happened to Pent-Up Demand? by Gene Beaudet, Nov 23 p 7

DON IACOVONI
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

IBSTOCK-JOHNSON LTD.
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13

INDENTICON CORP.
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

SUSUMU IKARI
U.S. Amada Opens Plant in California, Nov 23 p 26

IKEGAI IRON WORKS LTD.
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Import Flood Sparks a Wave of R & D at European Show,by R.J. Larsen, Nov 2 p 81

ILLINOIS INSTITUTE OF TECHNOLOGY RESEARCH INSTITUTE
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

IMPERIAL CLEVITE, INC.
Reading Foresees Gain for Its OEM Subsidiary, Oct 14 p 26

IMPLANTS
Implants Impart Wear Resistance to Alloy Surfaces, Sept 16 p 64

IMPORTS
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Centers Hurt, Not Helped by TMP, Nov 11 p 88
Commerce Department Probing Steel Imports, Aug 24 p 20
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Fastener Makers Seek Duty Extension, July 15 p 19
ITC Asked to Extend Fastener Protection, Sept 28 p 17
Japan's Copper Cops Less of U.S. Market, Nov 11 p 87
Justice, Commerce Act on Steel Imports, July 15 p 16
Management in America: Reshaping the Vision: Rebuilding Competitive Strength, by Michael Marley, Aug 3 p 43
Must Reading for the Powers that Be, by Gene Beaudet, Nov 2 p 7
New England Centers Have Inventory Woes, Sept 7 p 173
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Import Totals Can Prove Anything, Nov 11 p 85
Steel Leery of European Import Restraint, Dec 28 p 13
Steel Summary: Import Issue Heats Up., Europeans Want Out on TPM, by G.J. McManus, Aug 3 p 70
Steel Summary: Import Pattern Broadens, Sept 16 p 70
Steel Summary: Import Surge Causes Concern, July 15 p 71
Steel Summary: Imports 30 Pct. Over '80 Pace, Dec 16 p 75
Steel Summary: Market Slump Shouldn't Last, Nov 2 p 111
Steel Summary: Mills Firm on Import Issue, Nov 23 p 128
Steel Summary: Mills Push Dumping Suits, Oct 26 p 60
Steel Summary: Mills Want Direct Action on Imports, Oct 14 p 93
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Talking Business, Nov 2 p 59
Trade Deficit Declined $5.6 Billion in August, Oct 14 p 23
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16

HAJIMU INABA
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

INCO ELECTROENERGY CORP.
Inco ElectroEnergy Put Up for Auction, Dec 28 p 16

INCO LTD.
Inco ElectroEnergy Put Up for Auction, Dec 28 p 16
Nickel Demand Revival Likely in '82, Dec 28 p 57

Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Technology's Input is Vital to Sound Business Planning, P.J. Cathey, Sept 16 p 43

INDEX SYSTEMS, INC.
Line Managers Move from MIS to DSS for Decision-Making Help, by J.D. Baxter, Sept 28 p 71

INTRODUCTION HEATING
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

INDUCTOTHERM CO.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

INDUSTRIAL ALUMINUM CO., INC.
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105

INDUSTRIAL FASTENER'S INSTITUTE
Fastener Makers Seek Duty Extension, July 15 p 19

INDUSTRIAL RELATIONS
The Art of Negotiation Goes Beyond Bargaining Tables, by S.T. Parker, Oct 26 p 39

INTERNATIONAL RELATIONS
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by E.W. Bowers, Oct 26 p 30

INDUSTRIAL RELATIONS
Copperweld Speaks and Listens to Its Workers, by G.A. Weimer, Sept 7 p MP-46
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22
Human Training Cuts Engineering Attrition, Dec 7 p 51
If Managers Don't Mix, Then Effective Decisions Don't Get Made, by C.T. Post, Dec 7 p 49
Labor Problems Plague Brown & Sharpe Plants, by R.J. Larsen, Nov 2 p 25
Line Managers Move from MIS to DSS for Decision-Making Help, by J.D. Baxter, Sept 28 p 71
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45
Two Managers Who Aren't Running One-Man Shows, by G.A. Weimer, Nov 23 p 73

INDUSTRIAL REVENUE BONDS
Abuse Threatens Status of IRB Tax Exempts, by E.W. Bowers, Oct 14 p 55

INDUSTRIAL SERVICE CENTERS, INC.
New England Centers Have Inventory Woes, Sept 7 p 173

INDUSTRY
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
Business in 1982: Who's Got the Answers? by Gene Beaudet, Dec 28 p 7
But Are We Building Anything? by Gene Beaudet, Aug 3 p 7
Management in America—Reshaping the Vision—Rebuilding Competetive Strength, by Michael Marley, Aug 3 p 43
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
A Scrapbook of American Business Humor, Dec 28 p 27

INGALLS SHIPBUILDING DIV.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

INGERSOLL ENGINEERS INC.
Technology's Input is Vital to Sound Business Planning, P.J. Cathey, Sept 16 p 43

INGERSOLL MILLING MACHINE CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

INGOTS
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Aluminum Output Sags as Year Nears Close, Dec 7 p 88
Aluminum Stocks Highest in Six Years, Nov 2 p 112
Kaiser Perfects Electromagnetic Casting, Oct 5 p MP-5
U.S. Aluminum Exports to Japan in Trouble, Nov 11 p 85

INLAND MOTOR INDUSTRIAL DRIVES DIV.
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

INLAND STEEL CO.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29
Service Centers Oppose Trade Zone Proposal, July 6 p 122

IN-PLANT POWDER METAL ASSN.
Research Firm Studies Metal Powder Rolling, Sept 7 p MP-3

INRED IRON INC.
The Inred Process: An Ironmaking Option, by R.R. Irving, July 6 p MP-21

INRED PROCESS
The Inred Process: An Ironmaking Option, by R.R. Irving, July 6 p MP-21

INSPIRATION CONSOLIDATED COPPER CO.
Copper Takeover Derby Runs at Full Speed, July 15 p 73

INSTITUT FUR TECHNOLOGIE UND WERKZEUGMASCHINEN
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

INSTITUTE OF SCRAP IRON AND STEEL
July Scrap Exports Drop, Lowest Level Since '72, Sept 16 p 73
NARI Wants Railroads to End Shell Game, by R.J. Regan, Aug 3 p 70

INSTRUMENTS AND CONTROLS
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

INSTRUMENT SOCIETY OF AMERICA
GE Expands Functions of Its Series 6 PC, Oct 14 p 26

INSURANCE
Hedge Overseas Bets with Risk Insurance, P.J. Cathey, Aug 12 p 33
Reagan Expected to Sign Legislation, Sept 28 p 26

INTEGRATED CIRCUITS
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, by C.T. Post, Nov 2 p 63

INTERNATIONAL BAUXITE ASSN.
Brazilian Bauxite Upsets Market, July 6 p 120
U.S. is Not Vulnerable to Any Bauxite Cutoff, Dec 16 p 75

INTERNATIONAL BUSINESS MACHINES CORP.
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

INTERNATIONAL DATA CORP.
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76

INTERNATIONAL HARVESTER CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71
Harvester to Build Diesels for Ford, Oct 5 p 16

IH to Sell Combine Technology to Soviets, Dec 16 p 17
Nitriding Conquers Its Cyanide Problems, July 6 p 95
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37
UAW Opens the Door to Renegotiation, Dec 28 p 13

INTERNATIONAL IRON AND STEEL INSTITUTE
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
IISI: Cautious Forecast for '82 by L.R. Goldwater, Dec 7 p MP-23
Must Reading for the Powers that Be, by Gene Beaudet, Nov 2 p 7
Steel's Use of Computer Nears Mature Stage, Dec 7 p MP-15
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

INTERNATIONAL LEAD ZINC RESEARCH ORGANIZATION
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

INTERNATIONAL PRIMARY ALUMINUM INSTITUTE
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Aluminum Output Won't Match 1980 Record, Oct 14 p 93
Aluminum Shipments Dropped in 1980, July 15 p 71
Aluminum Stocks Hit Three-Year High, Oct 5 p 111
World Aluminum Output is Sagging Off, Dec 16 p 75

INTERNATIONAL RELATIONS
As Barter Business Booms, Some Firms Miss the Boat, by Roger Lopata, Oct 14 p 45
Tongue-Tied U.S. Execs Inflict Toll on Trade, by K.R. Moldt, July 6 p 75
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13
What are the Prospects for an American EEC? July 15 p 33
World Economic Growth Will be Limited, Nov 11 p 33

INTERNATIONAL SILVER CO.
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52

INTERNATIONAL TRADE COMMISSION
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13
Fastener Makers Seek Duty Extension, July 15 p 19
Gov't Fears Trade War if TPM is Lost, by E.W. Bowers, Dec 7 p 19
ITC Asked to Extend Fastener Protection, Sept 28 p 17
Steel Summary: Mills Firm on Import Issue, Nov 23 p 128

INTERNATIONAL UNION OF ELECTRICAL RADIO AND MACHINE WORKERS
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

INTERSTATE COMMERCE COMMISSION
Rail Rates Lowered for Nonferrous Scrap, Nov 2 p 114

INVENTORIES
Aluminum Stocks Highest in Six Years, Nov 2 p 112
Aluminum Stocks Hit Three-Year High, Oct 5 p 111
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Business Inventories Climb in July, Sept 28 p 132
Do Rising Stocks Signal a Further Fall in Orders? Nov 23 p 49
New England Centers Have Inventory Woes, Sept 7 p 173
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
Steel Summary: Market Slump Shouldn't Last, Nov 2 p 111
Steel Summary: Users Still Cutting Stocks, Dec 7 p 88
Survey Finds Easing of Tight Inventory Policies, Dec 16 p 18

INVESTMENTS
AMC Asks Workers to Invest Wages, by B.H. Berry, Dec 7 p 17

IOWA MFG. CO.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

IRELAND
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

IRON ORE
The Inred Process: An Ironmaking Option, by R.R. Irving, July 6 p MP-21
Plant Use Dips Lower; Steel Mills Hit, Dec 7 p 108
Steel Slump Brings Cut in Iron Ore Activity, Dec 7 p 88
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

IRON AND STEEL CO. OF TRINIDAD AND TOBAGO
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31

IRONMAKING
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

SHIGETOSHI ISHIHARA
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

ISRAEL
Computerized Machine Checks Parts Fast, Sept 16 p 64

C. ITOH-AMERICA & CO.
Look Who's Being Cut Out of Top Jobs in the U.S., by S.T. Parker, Aug 3 p 35
Supreme Court to Hear Japanese Job Bias Suit, Dec 16 p 17

SABURO IWAI
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14

J

BYRON JACKSON
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

RICHARD J. JACOB
Abuse Threatens Status of IRB Tax Exempts, by E.W. Bowers, Oct 14 p 55

W. T. JACOBS
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

FREDERICK G. JAICKS
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Must Reading for the Powers that Be, by Gene Beaudet, Nov 2 p 7

JAMAICA
For Aluminum, It's a Wide, Wide World, July 27 p 82
Jamaica Bauxite Buy-Strategy or Politics? Dec 28 p 56
U.S. is Not Vulnerable to Any Bauxite Cutoff, Dec 16 p 75

W. P. JANCOSKO
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

JAPAN
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Fastener Makers Seek Duty Extension, July 15 p 19
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
IISI: Cautious Forecast for '82 by L.R. Goldwater, Dec 7 p MP-23
Is Japan Also Ahead of Us in Welding? Sept 7 p 134

Japan's Copper Cops Less of U.S. Market, Nov 11 p 87
Japan's New Target in U.S.—Machine Tools, Aug 12 p 15
Japan's NKK Builds Seamless Tube Mill, Oct 5 p MP-5
Kupota Takes Aim at Its U.S. Markets, Nov 23 p 129
Look Who's Being Cut Out of Top Jobs in the U.S., by S.T. Parker, Aug 3 p 35
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Mini Car Market Blends GM and Suzuki, Sept 7 p 13
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59
Supreme Court to Hear Japanese Job Bias Suit, Dec 16 p 17
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13
U.S. Aluminum Exports to Japan in Trnphe, Nov 11 p 85
What One Expert Says About Our Product Quality, by R.R. Irving, July 15 p 49
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

JAPAN MINISTRY OF TRADE AND INDUSTRY
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
U.S. Aluminum Exports to Japan in Trouble, Nov 11 p 85

JAPAN STEEL WORKS LTD.,
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13

JERRY JASINOWSKI
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41

REUEL E. JENNINGS
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

TORSTEN E. JENSFELT
The Inred Process: An Ironmaking Option, by R.R. Irving, July 6 p MP-21

JON E. JENSON
Stampings Shipments, Orders Up in September, Nov 23 p 24

JET ENGINES
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109

S. G. JOHNSON
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

R. BRUCE JOHNSTON
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

CLIFFORD E. JONES
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

JAMES JONES
Tax Bill Continues to Stir Heated Debate, Aug 3 p 17

JONES & LAMSON CO.
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

JONES & LAUGHLIN STEEL CORP.
AISE Special Report- Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Calpro & Koppers Win Productivity Awards, Dec 7 p 46
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9
Plate and Shape Prices Up in a Slack Market, Sept 7 p 165
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Summary: Order Lag Worries Mills, Oct 5 p 111
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

EARLE M. JORGENSEN CO.
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
Profits are Down for West Coast Centers, Sept 28 p 119
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
Service Centers See Smaller Gains in 1982, Dec 28 p 58

JOHN JORGENSEN
Service Centers See Smaller Gains in 1982, Dec 28 p 58

JOSEPH CO.
Joseph Builds to Supply Nucor Mill, Dec 7 p MP-3

ARVID JOUPPI
GM Chairman Forecasts Healthier New Decade, July 6 p 22
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

JOHN D. JOYCE
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

KENNETH JULIEN
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31

JOSEPH M. JURAN
Management in America-Reshaping the Vision-Rebuilding Competetive Strength, by Michael Marley, Aug 3 p 43
A Tough Row to Hoe, by Gene Beaudet, July 15 p 7
What One Expert Says About Our Product Quality, by R.R. Irving, July 15 p 49

JURAN ENTERPRISES, INC.
What One Expert Says About Our Product Quality, by R.R. Irving, July 15 p 49

BERNARD J. JUREK
Are Machine Tool Builders Cutting It with Industry? by Iron Age Staff, Aug 24 p 77

K

KAISER ALUMINUM & CHEMICAL CORP.
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128
Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70
Aluminum Stocks Highest in Six Years, Nov 2 p 112
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Kaiser-Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
Kaiser Hikes Prices; Lowers Output, Oct 14 p 97
Kaiser Perfects Electromagnetic Castings, Oct 5 p MP-5
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
World Aluminum Market Has Indigestion, by R.J. Regan, Aug 24 p 125

HENRY J. KAISER FAMILY FOUNDATION
Kaiser Will Shut Down Steelmaking Operations, Nov 23 p 20

KAISER STEEL CORP.
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
Hiller Heads Group Seeking Kaiser Steel, Oct 5 p 111
Kaiser Will Shut Down Steelmaking Operations, Nov 23 p 20
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41

KASPER MACHINE CO.
New Process Runs Circles around Grinding, Oct 5 p 93

ROBERT KASTEN
Senate Panel Drafts Product Liability Bill, Nov 11 p 21

OSCAR KATOV
Spanish Tool Builders Raise Their U.S. Profile, Aug 12 p 15

HENRY KAUFMAN
It's Now Catch 22 Finance, Says Kaufman, Nov 2 p 41

HANS R. KAUTZ
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

HENRY KAY
Service Centers Oppose Trade Zone Proposal, July 6 p 122

KEARNEY & TRECKER CORP.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

KEARNEY & TRECKER MARWIN LTD.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

RALPH KEIDEL
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

KELCH GmbH & CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

MARYANN N. KELLER
Is the Auto Industry's Front-Wheel-Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

PAUL KELLY
New England Centers Have Inventory Woes, Sept 7 p 173

JOHN M. KELMAN
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20

KELSEY-HAYES CORP.
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

THOMAS KENDRICK
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

KENNECOTT CORP.
Commerce Issues Rules for Seabed Mining, Oct 5 p 19

EDWARD M. KENNEDY
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

KENTUCKY ELECTRIC STEEL CO.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

JOHN T. KERRIGAN
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

GEORGE A. KEYWORTH
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

KIDNAPPING
Hedge Overseas Bets with Risk Insurance, by P.J. Cathey, Aug 12 p 33

KILSBY-ROBERTS, THE TUBING CO.
Centers Hesitate to Invest in Equipment,by K.W. Bennett, Oct 26 p 63

J. J. KING
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13

PAUL J. KING
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

ROBERT L. KING
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

KINGSBURY MACHINE TOOL CO.
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

LANE KIRKLAND
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? by E.W. Bowers, Aug 24 p 34
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

JOHN H. KIRKWOOD
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45

SAM KISER
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

ROLAND A. KJELLAND
Kaiser Will Shut Down Steelmaking Operations, Nov 23 p 20

LAWRENCE R. KLEIN
Wharton's View: Record Deficits, No Recession, Oct 26 p 23

W. H. KNOELL
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41

KOEHRING CO.
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55
Koehring Foresees a Construction Recovery, July 15 p 24
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

DAVID KOENTOPF
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

KOLENE CORP.
Nitriding Conquers Its Cyanide Problems, July 6 p 95

KILLMORGEN CORP.
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

JAMES W. KOLP
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

STORA KOPPARBERG
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

KOPPERS CO., INC.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Calpro & Koppers Win Productivity Awards, Dec 7 p 46

KOREA ADVANCED INSTITUTE FOR SCIENCE
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

KORF TECHNOLOGIES, INC.
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33

KORN/FERRY INTERNATIONAL CO.
How Big Companies Care for Boards, July 15 p 33

DAMIAN KOTECKI
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

T. M. KREBS
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

J. F. KROKER
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

W. H. KROME GEORGE
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41

KUBOTA AMERICA CORP.
Kubota Takes Aim at Its U.S. Markets, Nov 23 p 129

KUBOTA, LTD.
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
Kubota Takes Aim at Its U.S. Markets, Nov 23 p 129

KUBOTA TRACTOR CORP.
Kubota Takes Aim at Its U.S. Markets, Nov 23 p 129

KONRAD J. A. KUNDIG
Book Review Ferrous Metallurgy in a Nutshell, Sept 7 p 139

RICHARD KUSTER
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

L

LTV CORP.
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47

LABOR
See Also:
Economics
Employment
Forecasting
Unemployment
AFL-CIO Starts Drive to Organize Southwest, Nov 11 p 21
AMC Asks Workers to Invest Wages, by B.H. Berry, Dec 7 p 17
Automation Will be Key to Auto Industry Talks, Nov 23 p 16
Autoworkers Adapting to New Workstyles, Nov 11 p 19
Both Sides Were Losers in 72-Day Coal Strike, July 6 p 28
Consumers Pessimistic About Jobs, Dec 7 p 108
Fraser: Give Us Jobs and We'll Do the Job, Sept 28 p 13
Help Wanted: Need More Jobs, Nov 23 p 148
Jobless Rate Climbs Still Higher, Dec 28 p 68
Jobless Rate Rises to 8 Million, Oct 26 p 76
Joint Bargainers Dump Wheeling-Pittsburgh, Sept 7 p 21
Labor Displeased with New Inflation Index, Nov 11 p 21
Labor Outlook Grim for 1982, Dec 28 p 68
Labor Problems Plague Brown & Sharpe Plants, by R.J. Larsen, Nov 2 p 25
McBride Unruffled by Wage Moderation Call, Sept 16 p 73
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75
Steel Summary: Slow Demand Cuts Shipments, Nov 11 p 85
Talking Business, Aug 12 p 45
Thinking the Labor Out of Manufacturing at Cincinnati Milacron, Sept 28 p 104
UAW Opens the Door to Renegotiation, Dec 28 p 13
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25
Workers Set to Buy Bearings Plant from GM, Nov 11 p 19

LESLIE M. LACKMAN
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60
U.S. Defense Industries are in Trouble, Congress is Told..., Oct 14 p 17

LADISH CO
Ladish Buy Considered Coup for Armco, Aug 3 p MP-3

LADLES
Low Sulfur Steel Plates, Nov 2 p MP-46

PIERRE LAGASSE
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

F. JOSEPH LAMB CO.
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

ROBERT J. LAMBRIX
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

ROBERT G. LANDON
Grumman's New Bus is Return to Basics, Nov 2 p 29

LAPHAM HICKEY STEEL CORP.
Service Centers See More Action Ahead, Aug 12 p 89

LARGE SCALE INTEGRATED CIRCUITS
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, by C.T. Post, Nov 2 p 63

EMIL LARSON
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

LA SALLE MACHINE TOOL, INC.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

LA SALLE STEEL CO.
Accord Reached between Quanex and LaSalle, Dec 7 p 14

LASERS
Coherent Enters Laser Metal Cutter Market, Dec 28 p 18

LATHES
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
GM Buys Cross' CNC Repair Lathe, Sept 28 p 29
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

JOHN LATIN
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

LATROBE STEEL CO.
Steel Quality Starts with Recruitment of Talented Engineers, by G.J. McManus, Sept 7 p MP-33

LAW AND LEGAL
Alcan Sues California on Tax Issue, by G.J. McManus, Aug 3 p 71
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Antitrust Legislation Head for Capital Hill, Sept 28 p 17
Chessie, Conrail Head for a Legal Collision, Aug 12 p 17
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
High Court OKs Surprise Mine Checks, July 6 p 25
Justice to Apply 'Rule of Reason' to Anti-Trust, Oct 5 p 13
Look Who's Being Cut Out of Top Jobs in the U.S., by S.T. Parker, Aug 3 p 35
Merger Guidelines Fuzzy, Says Antitrust's Baker, Sept 16 p 20
R & D Tax Credits Need a Close Look, Nov 23 p 56
Supreme Court to Hear Japanese Job Bias Suit, Dec 16 p 17
Theft in the Oilfield Will Cost Plenty, Aug 3 p 20
The Urge to Merge: The Climate Seems to Be Ripe, E.W. Bowers, Sept 7 p 30
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51

R. S. LAWRENCE
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63

LAWRENCE LIVERMORE NATIONAL LABORATORY
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

G. H. G. LAYT
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

LEAD
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73
Quarterly Forecast – Is the Outlook Still a Toss of the Coin? July 6 p 39

LEAR SIEGLER, INC.
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, by C.T. Post, Nov 2 p 63

LEASING
Recovery Act Should Boost Leasing Activity, Nov 23 p 40

JAMES C. LEATH
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

DAVID LEAVITT
Service Centers Oppose Trade Zone Proposal, July 6 p 122

LECTROMELT CORP.
AISE Special Report – Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

JAY W. LEEK
Execs Rank Regulations, Costs Ahead of Quality, July 6 p 28

MARTIN K. A. LEEKE
ASEA and ESAB Aim at U.S. Robot Market, Sept 28 p 29

LEGISLATION
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
Clean Air Act Reform Unlikely Until Spring, Dec 28 p 16
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41
Consult Us on B-1, Congress Warns Reagan, July 27 p 15
Failure Can be Hazardous to Health, by Roger Lopata, Aug 24 p 59
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13
Mr. Stanley Goes to Washington and Talks to Congress, by E.W. Bowers, July 15 p 43
Reagan Expected to Sign Legislation, Sept 28 p 26
Senate Panel Drafts Product Liability Bill, Nov 11 p 21
Tax Bill Continues to Stir Heated Debate, Aug 3 p 17
Tax Cut Slimmer in Summer's Heat, July 7 p 21
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30
U.S Defense Industries are in Trouble, Congress is Told..., Oct 14 p 17
What Can Small Business Expect from Washington? by E.W. Bowers, Oct 14 p SP-1
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58

JOHN LEHMAN
Can U.S. Shipyards Handle 600-Ship Navy? P.J. Cathey, July 27 p 48

LLOYD T. LEHN
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

R. C. LEINBACH, JR.
Cartech Continues to Pour Its Profits into Expansion, by G.J. McManus, Sept 7 p MP-37

ANTONIO DIAS LEITE
HSI: Cautious Forecast for '82, by L.R. Goldwater, Dec 7 p MP-23

JAMES R. LESCH
Hughes Tool Strikes a Growth Gusher in the Oil Country, by S.T. Parker, Sept 7 p 65

VERN LEUPKER
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

G. W. LEWIS
Alabama By-Products May Shut Pa. Plant, Aug 24 p 129
Alabama By-Products Shuts Down Pa. Plant, Sept 16 p 71

LEXINGTON STEEL CORP.
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3

LILLY INDUSTRIAL COATINGS, INC.
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

R. E. LINCOLN
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

LINCOLN ELECTRIC CO.
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

LINDBERG CYCLE-DYNE DIV.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

LINBERG DIV.
Energy-Efficient Retort, Nov 2 p MP-30
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

LINDE DIV.
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

FABIAN LINDEN
Consumers Loosing Confidence, Oct 14 p 116

RICHARD LINDGREN
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55
Koehring Foresees a Construction Recovery, July 15 p 24

ROBERT LINDMAN
Profits are Down for West Coast Centers, Sept 28 p 119

C. H. LINK
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 12 p 76

THOMAS D. LINN
Boston Digital Unveils New Turning Machine, July 15 p 20

CHARLES W. LIPPINCOTT
GM Buys Cross' CNC Repair Lathe, Sept 28 p 29

ABBOTT LIPSKY
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

F. J. LITTELL MACHINE CO.
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

ARTHUR D. LITTLE, INC.
Air/Water Clean-Up Costs Stunt Steel's Growth, P.J. Cathey, Sept 7 p MP-55
Steel Gets Break on Clean Air Regulations, Aug 3 p 15
Workers Set to Buy Bearings Plant from GM, Nov 11 p 19

LITTON INDUSTRIES, INC.
Japan's New Target in U.S.—Machine Tools, Aug 12 p 51
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

LOCKHEED CORP.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Lockheed Aids Chinese Metalworking Invasion, Aug 12 p 18
Lockheed Will Stop Producing L-1011s, Dec 28 p 16
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

LOOKHEED AIRCRAFT CORP.
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57

LOCKHEED-GEORGIA CO.
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114

LOCKHEED MISSILES AND SPACE CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Commerce Issues Rules for Seabed Mining, Oct 5 p 19
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

LOOKHEED SHIPBUILDING & CONSTRUCTION CO.
Can U.S. Shipyards Handle 600-Ship Navy? P.J. Cathey, July 27 p 48

MARCEL LOEB
Steel Leery of European Import Restraint, Dec 28 p 13

JOHN E. LOHNES
How Big Companies Care for Boards, July 15 p 33

LONG MFG. CO.
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

LOS ALAMOS NATIONAL LABORATORY
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

ROBERT L. LOUGHHEAD
Copperweld Speaks and Listens to Its Workers, by G.A. Weimer, Sept 7 p MP-46

LOUIS SCREW & BOLT CO.
ITC Asked to Extend Fastener Protection, Sept 28 p 17

HOWARD M. LOVE
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
National Steel Acquires Two S&L Institutions, Sept 28 p 115

STUART H. LOWENTHAL
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

LUBRICANTS
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

F. W. LUERSSEN
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

LUKENS STEEL CO
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36
Lukens to Diversify as Part of Long-Range Plan, Dec 7 p 17
Steel Summary: Mills Firm on Import Issue, Nov 23 p 128
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

C-E LUMMUS CO.
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

DAVID LUND
Trade Deficit Slumps to $2.6 Billion, Nov 23 p 17

DAN LURIA
Automation Will be Key to Auto Industry Talks, Nov 23 p 16

JOSEPH LURIE
Tongue-Tied U.S. Execs Inflict Toll on Trade, by K.R. Moldt, July 6 p 75

Mc

LLOYD MC BRIDE
Labor Displeased with New Inflation Index, Nov 11 p 21
McBride Unruffled by Wage Moderation Call, Sept 16 p 73
OSHA to Remain in Place, Auchter Says, July 27 p 19
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
U.S Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

ARCHIE R. MC CARDELL
Harvester to Build Diesels for Ford, Oct 5 p 166

REX MC CORMICK
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

A. C. MC DANIEL
Automation Technologies Merge in Manufacturing, July 27 p 21

F. J. MC DONALD
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

MC DONNELL DOUGLAS AUTOMATION CO.
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

MC DONNELL DOUGLAS CORP.
Air Force Picks McDonnell Douglas' CX Plane, Sept 16 p 17
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Australians to Buy F/A 18 Fighter Plane, Nov 11 p 24
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
Plane Builders Face Near Term Clouds, Sept 7 p 15
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

H. STUART MC EVOY
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40

DAVID L. MC EWAN
Borg-Warner-Mitsubishi Hook Up in Plastic Project, Aug 3 p 19

JOHN E. MC GINTY
Flexible Manufacturing: More Companies Make Competition Intense, by R.J Larsen, Sept 28 p 85

IAN MAC GREGOR
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53

JOHN W. MC INNIS
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

ROSS MC KEE
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

DAVY MC KEE CORP.
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

JAMES F. MC KINLEY, JR.
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

IAN MAC LAREN
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

EARNEST MC LAUGHLIN
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

JAMES MC LERNON
VW Will Open Second U.S. Plant in 1983, Nov 2 p 21

W. W. MC MAHON
National Roll to Add Centrifugal Casting, Nov 2 p MP-7

MC MASTER UNIVERSITY
Boston Digital Unveils New Turning Machine, July 15 p 20

J. COREY MC MILLAN
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

MC QUAY-PERFEX, INC.
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39

D. R. MAC RAE
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

MAC STEEL DIV.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

CHARLES MAC VANE
New England Centers Have Inventory Woes, Sept 7 p 183

M

MG DIV.
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

MSP INDUSTRIES CORP.
Flashless Warm Forming Whips Up Quality Parts, Oct 5 p 93

MACHINE TOOL ASSN. OF SPAIN
Spanish Tool Builders Raise Their U.S. Profile, Aug 12 p 15

MACHINE TOOLS
Are Machine Tool Builders Cutting It with Industry? by Iron Age Staff, Aug 24 p 77
Automation Technologies Merge in Manufacturing, July 27 p 21
Boston Digital Unveils New Turning Machine, July 15 p 20
Cleveland May be Site for New Tool Show, Sept 28 p 25
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
GM Buys Cross' CNC Repair Lathe, Sept 28 p 29
Gray: Reinvestment is Key to U.S. Competetive Edge, Nov 23 p 57
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Is the Auto Industry's Front-Wheel-Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Hefty Boost in June Machine Tool Orders, Aug 3 p 17
Japan's New Target in U.S.—Machine Tools, Aug 12 p 15
July Machine Tool Orders Disappointing, Sept 16 p 13
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Machine Tool Demand Will Improve, Exec Says, Nov 2 p 26
Machine Tool Orders Fell Sharply in May, July 15 p 16
Machine Tool Orders Rose in October, Dec 16 p 13
Machine Tool Orders Sagged in September, Nov 2 p 25
Machine Tool Orders Up 10 Pct. in August, Oct 5 p 13
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Machine Tools Crucial to National Security, Oct 5 p 13
Milacron Targets T-10 for Small Plants, Oct 26 p 19
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
SMT-Pullmax Opens New Facility in Midwest, Dec 7 p 21
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60
Spanish Tool Builders Raise Their U.S. Profile, Aug 12 p 15
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24
The Trend in Robots is Up-and That's the Truth, Aug 24 p 25
U.S.Amada Opens Plant in California, Nov 23 p 26
Yasnac Looks for More Recognition in America, Oct 26 p 19

MACHINERY AND ALLIED PRODUCTS INSTITUTE
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49

MACHINING
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Yasnac Looks for More Recognition in America, Oct 26 p 19

EDWARD R. MADIGAN
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41

MADISON STEEL CORP.
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63

KENNETH MAGEE
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74

MAGIC CHEF CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Staff, Aug 24 p 77

MAGNESIUM
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

MAGNETIC FIELDS
Computerized Machine Checks Parts Fast, Sept 16 p 64

MAGNETIC PARTICLE INSPECTION
Bethlehem to Install Billet Inspection System, Aug 3 p MP-3

ERROL E. MAHIBIR
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31

MAHO WERKZEUGMASCHINEBAU BABLE & CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

CORNELL C. MAIER
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
Kaiser Hikes Prices; Lowers Output, Oct 14 p 97
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus, and R.J. Regan, Nov 11 p 41

R. W. MAIER
Republic Regroups Its Energy Businesses, Dec 7 p MP-3

RALPH M. MAIN
How One Company Created Markets for Its Technology, by C.T. Post, Sept 7 p 131

MAINTENANCE ENGINEERING
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79

MAKINO MILLING MACHINE CO. LTD.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

ALEXANDER MALAHOFF
Copper Prices Move in a Narrow Range, Oct 26 p 61

ROBERT MALLER
Are Machine Tool Builders Cutting It with Industry? by Iron Age Staff, Aug 24 p 77

DAVID MALLINO
ITC Asks to Extend Fastener Protection, Sept 28 p 17

MANAGEMENT
The Art of Negotiation Goes Beyond Bargaining Tables, by S.T. Parker, Oct 26 p 39
Automation Will be Key to Auto Industry Talks, Nov 23 p 16
Autoworkers Adapting to New Workstyles, Nov 11 p 19
Copperweld Speaks and Listens to Its Workers, by G.A. Weimer, Sept 7 p MP-46
Cutting Travel and Entertainment Expense Down to Size, P.J. Cathey, Nov 23 p 65
How Big Companies Care for Boards, July 15 p 33
How Briggs & Stratton Combats Inflation, Oct 14 p 36
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J.D. Baxter, Nov 2 p 43
Human Training Cuts Engineering Attrition, Dec 7 p 51
If Managers Don't Mix, Then Effective Decisions Don't Get Made, by C.T. Post, Dec 7 p 49
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, by C.T. Post, Nov 2 p 63
Line Managers Move from MIS to DSS for Decision-Making Help, by J.D. Baxter, Sept 28 p 71
Management in America—Reshaping the Vision—Rebuilding Competitive Strength, by Michael Marley, Aug 3 p 43
Piersol Pine Cuts Corners without Cutting Quality, by Roger Lopata, Oct 14 p SP-11
Planning for Growth: One Company's Approach, by K.W. Bennett, Oct 14 p SP-6
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Smart Managers Can Navigate Crosswinds of Currency Change, P.J. Cathey, Oct 26 p 36
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45
Technology's Input is Vital to Sound Busines. Planning, P.J. Cathey, Sept 16 p 43
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52
Two Managers Who Aren't Running One-Man Shows, by G.A. Weimer, Nov 23 p 73
Want to Cut Costs? Organize to Do the Job, by J.D. Baxter, Aug 24 p 42
Warding Off Prophets of Gloom, by Gene Beaudet, Dec 16 p 7

MANAGEMENT ALTERNATIVES, INC.
Cutting Travel and Entertainment Expense Down to Size P.J. Cathey, Nov 23 p 65

MANAGEMENT INFORMATION SYSTEMS
Line Managers Move from MIS to DSS for Decision-Making Help, by J.D. Baxter, Sept 28 p 71

MANGANESE
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13

MANITOWOC CO., INC.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

MANNESMANN DEMAG CORP.
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18

DONALD S. MANNING
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

NAGA MANOHAR
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

MANTECH PROGRAM
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

KARI MANTYLA
UAW Opens the Door to Renegotiation, Dec 28 p 13

MANUFACTURERS HANOVER LEASING CORP.
Recovery Act Should Boost Leasing Activity, Nov 23 p 40

MANUFACTURING METHODS
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Automation Technologies Merge in Manufacturing, July 27 p 21
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48
Caterpiller Takes the Lead in the Use of Flexible Manufacturing, by R.J. Larsen, Sept 28 p 96
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
First Was CAD, Then CAM-Now, there's CAF, Sept 28 p 25
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Management in America—Reshaping the Vision—Rebuilding Competitive Strength, by Michael Marley, Aug 3 p 43
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19
Researchers Spread News of Flexible Manufacturing, by R.J. Larsen, Sept 7 p 99
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60
Technology's Input is Vital to Sound Business Planning, P.J. Cathey, Sept 16 p 43
Thinking the Labor Out of Manufacturing at Cincinnati Milacron, Sept 28 p 104
A Tough Row to Hoe, by Gene Beaudet, July 15 p 7
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52

MANUFACTURING SYSTEMS AND CONSULTING, INDUSTRIAL SOLID STATE CONTROLS, INC.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

GEORGE C. MARAKAS
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

MARATHON MFG. CO.
Offshore Rig Builders Moving Full Steam Ahead, by S.T. Parker, Sept 16 p 40

MARATHON OIL CO.
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
U.S. Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14

MARATHON WELDING PRODUCTS CO.
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

WILLIAM MARBERRY
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

EUGENE MARCH
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12

JOHN J. MARGLE
Bendix Stamps Axles for New Ford Trucks, Aug 24 p 19

JEROME MARK
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51

MARKETING
How One Company Created Markets for Its Technology, by C.T. Post, Sept 7 p 131
Management in America—Reshaping the Vision—Rebuilding Competitive Strength, by Michael Marley, Aug 3 p 43
Technology's Input is Vital to Sound Business Planning, P.J. Cathey, Sept 16 p 43
There's Moderate Optimism About Sales in '82, Dec 16 p 79
Tug-of-War is on Among Aluminum Suppliers, by R.J. Regan, July 15 p 41

MARMON KEYSTONE CORP.
Summer Softness Seeps into Service Centers, Aug 24 p 131

A. R. MAROSCIA
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3

DARYL MARSH
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

LARRY MARVIN
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

VINCENT G. MASSARO
If Inflation Eases, Will Interest Rates? Dec 16 p 29
Is Corporate Liquidity Being Overrated? Sept 16 p 42

MASCHINENFABRIK HEID AG
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

B. K. MASON
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114

MASSACHUSETTS INDUSTRIAL FINANCE AGENCY
Abuse Threatens Status of IRB Tax Exempts, by E.W. Bowers, Oct 14 p 55

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Cheaper Route to New Metals, Ceramic Alloys, Oct 5 p 93
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

MASSEY-FERGUSON, LTD.,
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

ISAO MASUMOTO
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

MATERIAL HANDLING
ASEA and ESAB Aim at U.S. Robot Market, Sept 28 p 29
Nissan to Install 220 Robots at U.S. Plant, Oct 5 p 16
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

MATERIALS
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109
GM: Materials Research Will Transform the Car, Sept 16 p 19
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

MATERIALS PROCESSING CENTER
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

THOMAS O. MATHUES
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

DAVID MATTSON
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

MAYTAG CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

MEASURING DEVICES
Mill Measuring, Nov 2 p MP-40

MEETINGS AND CONVENTIONS
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63

MELTING
Armco Starts Operation of Electric Arc Furnace, Sept 7 p MP-3
Energy-Efficient Retort, Nov 2 p MP-30

RAYMOND C. MELVIN
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

ALBERT MENDEZ
Ogden to Purchase Danly Machine Corp. July 6 p 22

MERCHANDISING
Fall Usually Raises Car Sales, But Not this Year, by B.H. Berry, Oct 26 p 13

MERGERS
AI Beats Out IC to Acquire Sunbeam, Nov 2 p 112
Accord Reached between Quanex and LaSalle, Dec 7 p 14
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53
Antitrust Legislation Head for Capitol Hill, Sept 28 p 17
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
But Are We Building Anything? by Gene Beaudet, Aug 3 p 7

Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63
Eastman 'Invests' in Micromelt Casting Co., Oct 5 p MP-5
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28
Justice to Apply 'Rule of Reason' to Anti-Trust, Oct 5 p 13
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47
Ladish Buy Considered Coup for Armco, Aug 3 p MP-3
Major Merger Mania Busting Out All Over, Aug 12 p 36
Merger Guidelines Fuzzy, Says Antitrust's Baker, Sept 16 p 20
Ogden to Purchase Danly Machine Corp., July 6 p 22
Oil Companies Prowl the Merger Jungle, July 27 p 82
Reading Foresees Gain for Its OEM Subsidiary, Oct 14 p 26
SMT-Pullmax Opens New Facility in Midwest, Dec 7 p 21
This Year is the Year of the Merger, Nov 23 p 40
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

PETER MERNER
Aluminum Stocks Highest in Six Years, Nov 2 p 112

MERRILL LYNCH, PIERCE, FENNER & SMITH CO.
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

MESSER GRIESHEIM GmbH
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

MESSERSCHMITT-BOLKOW-BLOHM AG
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

MESTA MACHINE CO.
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18

METAL COATINGS
Quarterly Forecast, Oct 5 p 36

METAL FORMING
Flashless Warm Forming Whips Up Quality Parts, Oct 5 p 93
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

METALLURGY
Book Review- Ferrous Metallurgy in a Nutshell, Sept 7 p 139
Cheaper Route to New Metals, Ceramic Alloys, Oct 5 p 93
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73
Shape Welding: A New Concept in Fabrication, by R.R. Irving, Nov 23 p 111
Why Chromium is the Most Critical of All Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

METAL POWDER INDUSTRIES FEDERATION
Research Firm Studies Metal Powder Rolling, Sept 7 p MP-3

METAL TRADERS, INC.
Copper Industry Has Everything But Demand, Nov 23 p 129

METALWORKING INDUSTRY
CAD/CAM Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48
Commerce Studies Metal Industries Productivity, Nov 2 p 112
Do Rising Stocks Signal a Further Fall in Orders? Nov 23 p 49
Down and Down Goes the Price Thermometer, July 27 p 43
Executives Hold the Cheers and Prices-and-Profits-Cool, Sept 28 p 49
For New Orders Call It Black October, Dec 28 p 46
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J.D. Baxter, Nov 2 p 43
Inflation-Cooling Carries a High Price Tag, Sept 7 p 43
Lockheed Aids Chinese Metalworking Invasion, Aug 12 p 18
Lower Prices are Fine, But at What Cost? July 28 p 31
Orders Set Back by a Slow Economy and High Interest Rates, Oct 26 p 33
Orders: Some Up, Some Down-But Mostly Sideways, Sept 28 p 53
Prices Cool Further-Except for those Wild Auto Tags, Dec 7 p 33
Quarterly Forecast-Is the Outlook Still a Toss of the Coin? July 6 p 39
There's Good News-But Don't Haul Down the Storm Flags Yet, Nov 2 p 61
The Waiting Game is Over-Now What? Aug 24 p 56
Would You Believe a Long, Hot Winter? by Gene Beaudet, July 27 p 7

METRON MACHINE INC.
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79

METRON STEEL CORP.
Distributors Step Up Modernization Program, Nov 2 p 117

HOWARD METZENBAUM
The Urge to Merge: The Climate Seems to be Ripe, by E.W. Bowers, Sept 7 p 30

MEXICO
Trade Zone Proposed on U.S.-Mexican Border, Aug 12 p 21
What are the Prospects for an American EEC? July 15 p 33

CLIFFORD R. MEYER
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

DANIEL J. MEYER
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

NORMAN MICHAELS
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

FREDERICK J. MICHEL
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

MICROMELT, INC.
Eastman 'Invests' in Micromelt Casting Co., Oct 5 p MP-5

MICROPROCESSORS
Efficient Boilers Could Yield Huge Savings, Sept 16 p 70
Milacron Targets T-10 for Small Plants, Oct 26 p 19

FREDERICK J. MICHEL
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67

MIDDLE TENNESSEE STATE UNIVERSITY
Educator Feels the TPM is a Good Compromise, Oct 26 p 61

MIDREX CORP.
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

MIDVALE STEEL CO.
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
U.S. Defense Industries are in Trouble, Congress is Told . . ., Oct 14 p 17

K. J. MIGHDOLL
NARI Wants Railroads to End Shell Game, by R.J. Regan, Aug 3 p 70

MILBAR CORP.
Two Managers Who Aren't Running One-Man Shows, by G.A. Weimer, Nov 23 p 73

MILLCRAFT INDUSTRIES, INC.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

D. H. MILLER
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9

FRANK J. MILLER
Fruehauf Lightens Load over the Long Road, Nov 2 p 31

G. A. MILLER
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

HERSHEL A. MILLER
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berr July 27 p 29
Machine Tool Demand Will Improve, Exec Says, Nov 2 p 26

MIKE MILLER
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67

ROBERT A. MILLER
Ways Small Companies Can Reduce Borrowing, Aug 3 p 31

MILLING MACHINES
Hurco Enters the Big Time, by R.E. Harvey, Oct 14 p SP-14
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

LEE MINARDI
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

MINERALS
Federal Agencies Blamed for Coal 'Monopoly', Sept 7 p 19
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31
National Minerals Policy Requires a Strong Boss, Dec 16 p 76
Reagan's Minerals Policy Will Remove Impediments, Nov 23 p 20
Strauss Cites Minerals Role of Third World, Oct 5 p 109
U.S. Policies Impare Mining, Says Strauss, Nov 2 p 29

MINICOMPUTERS
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

MINING EQUIPMENT
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

MINING INDUSTRY
All Quiet on American Congress Front, Oct 14 p 97
Both Sides Were Losers in 72-Day Coal Strike, July 6 p 28
Cobalt Could be Mined in U.S., Interior Says, Sept 16 p 71
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28
High Court OKs Surprise Mine Checks, July 6 p 25
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
Mining Execs Got Biggest Hikes in '80, Dec 16 p 29
National Minerals Policy Requires a Strong Boss, Dec 16 p 76
Quarterly Forecast, Oct 5 p 36
Reagan 'Fully Supports' His Interior Secretary, Aug 24 p 17
Reagan's Minerals Policy Will Remove Impediments, Nov 23 p 20
Surface Mining Rules Freeze Technology, Sept 28 p 25
U.S. Policies Impare Mining, Says Strauss, Nov 2 p 29

HERBERT L. MISCH
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

RONALD V. MISKELL
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

M. TED MITCHELL
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

WILLIAM A. MITCHELL
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

MITSUBISHI GAS CHEMICAL CO.
Borg-Warner-Mitsubishi Hook Up in Plastic Project, Aug 3 p 19

MITSUBISHI HEAVY INDUSTRIES, LTD.
Is Japan Also Ahead of Us in Welding? Sept 7 p 134

MITSUI AND CO. LTD.
Justice, Commerce Act on Steel Imports, July 15 p 16

FRANCOIS MITTERAND
U.S. Pressures French on Export Subsidies, Oct 5 p 18

MOBIL OIL CORP.
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45

MOBIL RESEARCH AND DEVELOPMENT CORP.
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

MODERN FORGE/TENNESSEE CO.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

MODICON DIV.
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44

MODULES
Module Linings Fashion Savings, Nov 2 p MP-25

MOHWAK EUROPA, LTD.
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

RICHARD D. MOLLISON
Oil Companies Prowl the Merger Jungle, July 27 p 82

MOLYBDENUM
Climax Puts New Moly Mine Project on Shelf, Aug 24 p 128
Climax Reduces Its Molybdenum Production, Sept 28 p 116

S. A. MONCRIEF
Service Centers Oppose Trade Zone Proposal, July 6 p 122

MONCRIEF-LENOIR MFG. CO.
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Service Centers Oppose Trade Zone Proposal, July 6 p 122

A. C. MONTAG
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

JOSEPH MONTGOMERY
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

CHARLES MOODY, JR.
New England Centers Have Inventory Woes, Sept 7 p 173

LARRY V. MOORE
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59

WILLIAM G. MOORE
EDM Growth in U.S. Yet to be Realized, July 27 p 21

JACK E. MORAN
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
U.S. Defense Industries are in Trouble, Congress is Told . . ., Oct 14 p 17

BRIAN J. MORIARTY
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

MORGAN GUARANTY TRUST CO.
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

DANIEL P. MOYNIHAN
Clean Air Act Reform Unlikely Until Spring, Dec 28 p 16
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41

EDWIN S. MRUK
Mining Execs Got Biggest Hikes in '80, Dec 16 p 29

HANS MUELLER
Educator Feels the TPM is a Good Compromise, Oct 26 p 61

JOHANNES MUELLER
Nitriding Conquers Its Cyanide Problems, July 6 p 95

MUELLER BRASS CO.
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

JOHN MUIR
GM Chairman Forecasts Healthier New Decade, July 6 p 22

JOHN MUIR & CO.
Is Detroit Automaking Shrinking or Just Changing Its Shape, by B.H. Berry, July 27 p 29

CRAIG MUNDIE
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

GERALD E. MUNERA
Howmet to Start Up Cold Rolling Mill, Sept 28 p 116

GEORGE B. MUNROE
Future Copper Output Should Match Demand, July 6 p 120

MURATA MACHINERY LTD.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

ROBERT F. MURPHY
Price Incentive Spur Summer Auto Sales, Sept 16 p 19

RUSSELL MURPHY
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

BRUCE C. MURRAY
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

SAMUEL MURRAY
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58

SEIICHI MUTO
Relining Furnaces by Dry-Mix Refractories, Nov 2 p MP-36

TONY MYER
Failure Can be Hazardous to Health, by Roger Lopata, Aug 24 p 59

JAMES MYERS
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

N

NRC CORP.
Shop Floor Data Closes the Loop in Factory Management by A.M. Greene, Sept 28 p 75

NKK AMERICA, INC.
Relining Furnaces by Dry-Mix Refractories, Nov 2 p MP-36

RICHARD NALLE
Inco ElectroEnergy Put Up for Auction, Dec 28 p 16

FREDERICK J. NAPOLITANO
New Home Sales Hit All-Time Low, Nov 23 p 148

BENNETT NATHANSON
Composite Makers Still Wait for a Breakthrough, by R.J. Regan, Aug 12 p 76

NATIONAL ACADEMY OF SCIENCES
Surface Mining Rules Freeze Technology, Sept 28 p 25

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

NATIONAL ASSN. OF ALUMINUM DISTRIBUTORS
Aluminum Shipments Dropped in 1980, July 15 p 71
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133

NATIONAL ASSN. OF CREDIT MANAGEMENT
Credit Managers Face Double Dilemma, Aug 24 p 49

NATIONAL ASSN. OF HOME BUILDERS
New Home Sales Hit All-Time Low, Nov 23 p 148

NATIONAL ASSN. OF MANUFACTURERS
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41

NATIONAL ASSN. OF PURCHASING MANAGEMENT
Purchasers Report Few Gains in Output, Orders, Oct 14 p 21
Purchasers Troubled by High Interest Rates, Sept 28 p 20
Survey Finds Easing of Tight Inventory Policies, Dec 16 p 18

NATIONAL ASSN. OF REALTORS
New Home Sales Hit All-Time Low, Nov 23 p 148

NATIONAL ASSN. OF RECYCLING INDUSTRIES
Auto, Housing Slumps Hold Down Copper Sales, by R.J. Regan, Aug 24 p 128
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40
NARI Wants Railroads to End Shell Game, by R.J. Regan, Aug 3 p 70
Primary Aluminum Production Declines, Sept 28 p 115
Rail Rates Lowered for Nonferrous Scrap, Nov 2 p 114
Weak Markets Weaken Copper Price Level, Nov 2 p 111

NATIONAL ASSN. OF WHOLESALERS-DISTRIBUTORS
Senate Panel Drafts Product Liability Bill, Nov 11 p 21

NATIONAL CONSTRUCTORS ASSN.
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

NATIONAL DRILLING EQUIPMENT CORP.
Oilfield Demand Poses Problems for Suppliers, Oct 14 p 25

NATIONAL FAMILY OPINION, INC.
Consumers Loosing Confidence, Oct 14 p 116

NATIONAL FEDERATION OF INDEPENDENT BUSINESS
What Can Small Business Expect from Washington? by E.W. Bowers, Oct 14 p SP-1

NATIONAL FLUID POWER ASSN.
Machine Tool Demand Will Improve, Exec Says, Nov 2 p 26

NATIONAL MACHINE TOOL BUILDERS ASSN.
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Gray: Reinvestment is Key to U.S. Competetive Edge, Nov 23 p 57
Hefty Boost in June Machine Tool Orders, Aug 3 p 17

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

NATIONAL MACHINE TOOL BUILDERS ASSN.
Industry Gets Its Long Awaited Day on Capitol Hill as the House Passes Reagan's Tax Cut Bill, Aug 12 p 13
July Machine Tool Orders Disappointing, Sept 16 p 13
Machine Tool Orders Fell Sharply in May, July 15 p 16
Machine Tool Orders Sagged in September, Nov 2 p 25
Machine Tool Orders Rose in October, Dec 16 p 13
Machine Tool Orders Up 10 Pct. in August, Oct 5 p 13
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
Quarterly Forecast-Is the Outlook Still a Toss of the Coin? July 6 p 39
Senate Panel Drafts Product Liability Bill, Nov 11 p 21
Special Analysis-Is U.S. Trade Policy Free, Fair or Open? by E.W. Bowers, Aug 24 p 34

NATIONAL POLICY CENTER ON EMPLOYMENT AND RETIREMENT
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

NATIONAL RESEARCH COUNCIL
Surface Mining Rules Freeze Technology, Sept 28 p 25

NATIONAL ROLL DIV.
National Roll to Add Centrifugal Casting, Nov 2 p MP-7

NATIONAL SEMICONDUCTOR CO.
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

NATIONAL STEEL & SHIPBUILDING CO.
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
U.S. Defense Industries are in Trouble, Congress is Told . . ., Oct 14 p 17

NATIONAL STEEL CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J McManus, July 6 p MP-7
National Steel Acquires Two S&L Institutions, Sept 28 p 115
National Steel Sells Land in Texas, Sept 16 p 70
Plate and Shape Prices Up in a Slack Market, Sept 7 p 165

NATIONAL STEEL CO.
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

NATIONAL STEEL PELLET CO.
Steel Slump Brings Cut in Iron Ore Activity, Dec 7 p 88

NATIONAL STEEL SERVICE CENTER, INC.
Chicago Service Centers Keep Things Moving, July 15 p 75
There's Moderate Optimism About Sales in '82, Dec 16 p 79

NATIONAL WELDING SUPPLY ASSN.
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

NATURAL GAS
Two Texas Pipelines Receive a Go-Ahead, Aug 3 p 20

NAXOS ASSOCIATES, INC.
Two Managers Who Aren't Running One-Man Shows, by G.A. Weimer, Nov 23 p 73

NEGOTIATIONS (MANAGEMENT)
The Art of Negotiation Goes Beyond Bargaining Tables, by S.T. Parker, Oct 26 p 39

DAVID NEISWENDER
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

JOSEPH NEMEC, JR.
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

NEW DEPARTURE-HYATT BEARING DIV.
Workers Set to Buy Bearing Plant from GM, Nov 11 p 19

NEW ENGLAND
New England Centers Have Inventory Woes, Sept 7 p 173

NEW IDEA FARM EQUIPMENT DIV.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

HARRY V. NEWELL
Heat Treating Facility to Meet Tubing Demand, Sept 7 p MP-1

NEWFOUNDLAND
Offshore Newfoundland: Another North Sea? July 15 p 20

NEWFOUNDLAND OCEANS RESEARCH AND DEVELOPMENT CORP.
Offshore Newfoundland: Another North Sea? July 15 p 20

GERALD NEWMIN
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52

NEWPORT NEWS SHIPBUILDING CO.
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48

NEWPORT STEEL CORP.
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

NEW ZEALAND STEEL, LTD.
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

NICHOLS ENGINEERING & RESEARCH CORP.
Fluid Bed's Benefits, Nov 2 p MP-32

NICKEL
Amax Wants Federal Aid for Cobalt Project, Nov 23 p 24
Nickel Demand Revival Likely in '82, Dec 28 p 57
Nickel Demand Will Rise, If Interest Rates Fall, Sept 7 p 171

WILLIAM L. NICOLAY
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

F. G. NIEBERDING
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18

NIPPON KOKAN
Dry Mix Materials Used to Reline Runners, Sept 7 p MP-5
Japan's NKK Builds Seamless Tube Mill, Oct 5 p MP-5
Relining Furnaces by Dry-Mix Refractories, Nov 2 p MP-36

NIPPON STEEL CORP.
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

NISSAN MOTOR CO. LTD.
Nissan to Install 220 Robots at U.S. Plant, Oct 5 p 16

NISSAN MOTOR MFG. CORP., USA
Nissan to Install 220 Robots at U.S. Plant, Oct 5 p 16

NITRIDING
Nitriding Conquers Its Cyanide Problems, July 6 p 95

EDWARD NOBLE
Glimmer Fades from Synfuels' Pot of Gold, July 6 p 25
Reagan Puzzles Synfuels Industry, Halts Fued, Aug 12 p 17

NOISE
OSHA Finally Sets New Noise Level Rules, Sept 7 p 13

NONFERROUS INDUSTRY
Quarterly Forecast, Oct 5 p 36
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Turns a Corner; Nonferrous Drops Back, by G.J. McManus and R.J. Regan, Aug 12 p 41

NONFERROUS METALS
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41

NORANDA METAL INDUSTRIES, INC.
Cerro Metals Plans Brass Rod Expansion, July 6 p MP-3

NORANDA MINES LTD.
Copper Producers Face Supply-Demand Squeeze, Sept 28 p 117

LEIF NORDBO
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

WILLIAM NORDHAUS
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51

ROBERT NORRIS
Reading Foresees Gain for Its OEM Subsidiary, Oct 14 p 26

NORTH AMERICAN COPPER & BRASS CO., INC.
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

NORTH AMERICAN PRODUCTS, INC.
North American Sets Foot in Metalworking Industry, by R.E. Harvey, Aug 12 p 75

NORTH CAROLINA
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

NORTHERN TELCOM INC.
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

NORTHROP CORP.
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Human Training Cuts Engineering Attrition, Dec 7 p 51
A New Dimension in CAD/CAM Software, Aug 3 p 20
Northrop Gets Contract for Stealth Bomber, Nov 2 p 29
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

NORTHSTAR STEEL & ALUMINUM, INC.
New England Centers Have Inventory Woes, Sept 7 p 183

NORTHWESTERN STEEL & WIRE CO.
How Cooling It Makes Electric Furnaces Produce More , by G.J. McManus, Oct 5 p MP-7

NORTHWESTERN TOOL & DIE MFG. CORP.
Planning for Growth: One Company's Approach, by K.W. Bennett, Oct 14 p SP-6

NORTON CO.
Coated Abrasive Belts Get Stronger Backing, by J.J. Obrzut, Aug 3 p 59
Norton Sees Big Market for New Grinding Wheel, Sept 7 p 19

JANET L. NORWOOD
Jobless Rate Climbs Still Higher, Dec 28 p 68

NUCLEAR POWER
Nuclear Industry Recharged for a New Wave of Growth, by R.E. Harvey, Aug 12 p 47
Nuclear Power May Move Out of Doldrums, Aug 24 p 21
Reagan's Nuclear Plan May Not be Needed, Nov 2 p 26
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

NUCOR CORP.
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

NUMERICAL CONTROL
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101
EDM Growth in U.S. Yet to be Realized, July 27 p 21
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
GM Buys Cross' CNC Repair Lathe, Sept 28 p 29
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
U.S. Amada Opens Plant in California, Nov 23 p 26

ANDREW C. NYCE
Research Firm Studies Metal Powder Rolling, Sept 7 p MP-3

GORDON L. NYLEN
General Automation Tries a New Approach to Software, Nov 23 p 82

O

OCN-OLIVETTI CONTROLLO NUMERICO S. P. A.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

OAK RIDGE NATIONAL LABORATORY
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53
Why Chromium is the Most Critical of All Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

OCCUPATIONAL ILLNESS
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

OCCUPATIONAL SAFETY AND HEALTH ORGANIZATION
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OSHA Finally Sets New Noise Level Rules, Sept 7 p 13
OSHA to Remain in Place, Auchter Says, July 27 p 19
Thorne Auchter Ready to Give OSHA a New Look, by E.W. Bowers, Nov 23 p 43
What Can Small Business Expect from Washington by E.W. Bowers, Oct 14 p SP-1
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

ROBERT D. O'DONNELL
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60

RICHARD J. OEHLBERG
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20

OERLIKON-BUEHRLE AG
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

OFFICE OF SURFACE MINING
Reagan 'Fully Supports' His Interior Secretary, Aug 24 p 17

OFFICE OF TECHNOLOGY ASSESSMENT
Domestic Steel Growth Will be Slow, OTA Says, Sept 7 p MP-3

OFFSHORE CASTINGS LTD.
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

OFFSHORE DATA SERVICES INC.
Offshore Rig Builders Moving Full Steam Ahead, by S.T. Parker, Sept 16 p 40

OFFSHORE DRILLING
Hughes Tool Strikes a Growth Gusher in the Oil Country, by S.T. Parker, Sept 7 p 68
Offshore Newfoundland: Another North Sea? July 15 p 20
Offshore Rig Builders Moving Full Steam Ahead, by S.T. Parker, Sept 16 p 40
Oilfield Demand Poses Problems for Suppliers, Oct 14 p 25

OGDEN CORP.
Ogden to Purchase Danly Machine Corp., July 6 p 22

MAKOTO OHSAWA
Nitriding Conquers Its Cyanide Problems, July 6 p 95

OIL
GAO: U.S. isn't Ready for Another Oil Crunch, Oct 26 p 17

OIL FILTERS
How One Company Created Markets for Its Technology, by C.T. Post, Sept 7 p 131

OKUMA MACHINERY WORKS LTD.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

ARTHUR OKUN
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

JOSEPH OLINDER
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74

O'NEAL STEEL INC.
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74

ONTARIO CORP.
Mr. Stanley Goes to Washington and Talks to Congress, by E.W. Bowers, July 15 p 43

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT
Steel Summary: Import Issue Heats Up., Europeans Want Out on TPM, by G.J. McManus, Aug 3 p 70

ORGANIZATION RESOURCES COUNSELORS INC.
Salaries for Overseas Managers are Soaring, Sept 16 p 42

RICHARD J. ORRELL
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

OSTERWALDER AG
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

EDWARD OTTERSON
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

OVERSEAS EMPLOYMENT
Salaries for Overseas Managers are Soaring, Sept 16 p 42

OVERSEAS PRIVATE INVESTMENT CORP.
Hedge Overseas Bets with Risk Insurance, by P.J. Cathey, Aug 12 p 33

J. ALLEN OVERTON
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63

WILLIAM OWCZARSKI
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109

OXYGEN
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

GLENN W. OYLER
Is Japan Also Ahead of Us in Welding? Sept 7 p 134

P

PACIFIC STEEL AND SUPPLY CO.
Justice, Commerce Act on Steel Imports, July 15 p 16

PAINE WEBBER MITCHELL HUTCHINS, IND.
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

PAINT INDUSTRY
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

PARK CORP.
Cleveland May be Site for New Tool Show, Sept 28 p 25

PARK-OHIO INDUSTRIES, INC.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

THOMAS PARKER
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

PARKER-HANNIFIN CORP.
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

KARL M. PARRISH
Recovery Act Should Boost Leasing Activity, Nov 23 p 40

CHARLES W. PARRY
Aluminum Stocks Hit Three-Year High, Oct 5 p 111

JESS PARSONS
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

JOSEPH PATERNO, JR.
Norton Sees Big Market for New Grinding Wheel, Sept 7 p 19

ALBERT S. PATNIK
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

BORIS E. PATON
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

PATON INSTITUTE
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

DONALD PATTERSON
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

ROBERT E. PATTERSON
Abuse Threatens Status of IRB Tax Exempts, by E.W. Bowers, Oct 14 p 55

JOHN R. PAUS
Composite Makers Still Wait for a Breakthrough, by R.J. Regan, Aug 12 p 76

H. W. PAXTON
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

KEITH PAYNE
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

GLEN PECK
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

PECOR DIV.
Fiber Optics Helps Control Critical Welding Operations, by R.R. Irving, Oct 14 p 83

PELLETS
Outlook Good for Pellet, Sinter Plants Worldwide, Nov 2 p MP-3

PENNSYLVANIA ENGINEERING CORP.
Fiber Optics Helps Control Critical Welding Operations, by R.R. Irving, Oct 14 p 83

PENNSYLVANIA STATE UNIVERSITY
Federal Agencies Blamed for Coal 'Monopoly', Sept 7 p 19

PENSIONS
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47

PENNWALT CORP.
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

PENNZOIL CO.
Oil Companies Prowl the Merger Jungle, July 27 p 82

PEOPLE'S REPUBLIC OF CHINA
Fastener Makers Seek Duty Extension, July 15 p 19

DONALD E. PETERSEN
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59

HENRY PETERSEN
Service Centers See Smaller Gains in 1982, Dec 28 p 58

RONALD S. PETERSON
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

PETERSON STEELS, INC.
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

PETROLEUM INDUSTRY
Armco Hits a Gusher in Oil Country Sales, Nov 2 p 26
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28
GAO: U.S. isn't Ready for Another Oil Crunch, Oct 26 p 17
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67
Hughes Tool Strikes a Growth Gusher in the Oil Country, by S.T. Parker, Sept 7 p 65
Offshore Newfoundland: Another North Sea? July 15 p 20
Offshore Rig Builders Moving Full Steam Ahead, by S.T. Parker, Sept 16 p 40
Oil Companies Prowl the Merger Jungle, July 27 p 82
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49
Oilfield Demand Poses Problems for Suppliers, Oct 14 p 25
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast: Is the Outlook Still a Toss of the Coin? July 6 p 39
Steel Summary: Oil Country Sales Turn Mills On, by G.A. Weimer, Aug 24 p 125
Theft in the Oilfield Will Cost Plenty, Aug 3 p 20
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
U.S. Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14

GEORGE D. PFAFFMAN
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

HERMANN PFAUTER GmbH & CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

CARL PFEIFFER
Accord Reached between Quanex and LaSalle, Dec 7 p 14

PHELPS DODGE CORP.
Copper Prices and Demand Decline, Oct 14 p 101
Copper Takeover Derby Runs at Full Speed, July 15 p 73
Future Copper Output Should Match Demand, July 6 p 120
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41

PHILADELPHIA
New Coal Terminal Planned in Philadelphia, Sept 28 p 20

PHILADELPHIA NATIONAL BANK
Ways Small Companies Can Reduce Borrowing, Aug 3 p 31

DAVID PHILLIPS
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

GLEN L. PHILLIPS
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

PHOENIX STEEL CORP.
U.S. Pressures French on Export Subsidies, Oct 5 p 18

J. B. PIATT
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

MARY S. PICKETT
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

ROBERT PIEPENBURG
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

PIERSOL PINE MFG. CO., INC.
Piersol Pine Cuts Corners without Cutting Quality, by Roger Lopata, Oct 14 p SP-11

PIG IRON
The Inred Process: An Ironmaking Option, by R.R. Irving, July 6 p MP-21

JOHN K. PIKE
Fluor Not Tying Its Future Strategy to One Industry, by C.T. Post, July 15 p 28

PILLSBURY CHEMICAL & OIL, INC.
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

IRVING PINCUS
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

DALE PINKERT
Scrap Corp. to Build Giant Briquetting Plant, Oct 14 p 101

PIONEER ALUMINUM, INC.
Aviation Market Slow; Steel Shipments Up, Oct 14 p 105

PIPE
Steel Import Totals Can Prove Anything, Nov 11 p 85
Steel Summary: Oil Country Sales Turn Mills On, by G.A. Weimer, Aug 24 p 125

PIPELAYERS
Caterpillars to Sell Pipelayers to Soviets, Sept 16 p 20

PIPELINES
Reagan Says No Funds for Alaska Pipeline, Nov 11 p 24
Two Texas Pipelines Receive a Go-Ahead, Aug 3 p 20

TONY PISEK
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79

BRIAN PITT
Cerro Metal Plans Brass Rod Expansion, July 6 p MP-3

PLANNING
Lukens to Diversify as Part of Long-Range Plan, Dec 7 p 17
Planning for Growth: One Company's Approach, by K.W. Bennett, Oct 14 p SP-6
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

MORTON B. PLANT
July Scrap Exports Drop, Lowest Level Since '72, Sept 16 p 73

PLANT CLOSINGS
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

PLASMA TECHNOLOGY
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

PLASTICS
Borg-Warner-Mitsubishi Hook Up in Plastic Project, Aug 3 p 19
GM: Materials Research Will Transform the Car, Sept 16 p 19
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49
Pontiac's Plastic Car Likely to Use New SMC, Dec 28 p 17
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53

PLATE, SHEET AND STRIP
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29
Low Sulfur Steel Plates, Nov 2 p MP-46
Plate and Shape Prices Up in a Slack Market, Sept 7 p 165

HAROLD POLING
Automaking Adapting to New Workstyles, Nov 11 p 19

POLYMERS
GM: Materials Research Will Transform the Car, Sept 16 p 19

NORMAN S. POMERANTZ
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51

PONTIAC MOTOR DIV.
Pontiac's Plastic Car Likely to Use New SMC, Dec 28 p 17
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59

DONALD POSTMA
Is the Auto Industry's Front Wheel Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35

POWERED METALS
Research Firm Studies Metal Powder Rolling, Sept 7 p MP-3
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

POWER TRANSMISSION SYSTEMS
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

PRATT & WHITNEY AIRCRAFT GROUP
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19

PRECISION STEEL WAREHOUSE, INC.
There's Moderate Optimism About Sales in '82, Dec 16 p 79

PRESRITE CORP
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

PRESSES
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114

PHILIP J. PRESSLER
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

GUENTHER PREUSSNER
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

MELVIN PRICE
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49

PRICES
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
Consumers Keep Faith, July 15 p 34
Copper Prices and Demand Decline, Oct 14 p 101
Copper Price Hedging Follows Output Dip, Dec 16 p 76
Copper Prices Move in a Narrow Range, Oct 26 p 61
Copper Prices Retreat on the Hedge Markets, Sept 7 p 169
Copper Prices Rise, But Reason is Obscure, Aug 12 p 86
Down and Down Goes the Price Thermometer, July 27 p 43
Executives Hold the Cheers and Prices-and-Profits-Cool, Sept 28 p 49
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J.D. Baxter Nov 2 p 43
Inflation Just Keeps Rolling Along, Sept 16 p 84
Inflation Pace Begins to Moderate, Dec 16 p 92
Kaiser Hikes Prices; Lowers Output, Oct 14 p 97
Lower Prices are Fine, But at What Cost? July 28 p 31
Plate and Shape Prices Up in a Slack Market, Sept 7 p 165
Price Incentive Spur Summer Auto Sales, Sept 16 p 19
Prices Cool Further—Except for those Wild Auto Tags, Dec 7 p 33
Weak Markets Weaken Copper Price Level, Nov 2 p 111

T. R. PRICHETT
Kaiser Perfects Electromagnetic Castings', Oct 5 p MP-5

PRIMARY ALUMINUM INSTITUTE
Aluminum Stocks Highest in Six Years, Nov 2 p 112

PRINTED CIRCUIT BOARDS
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79

PRODUCTION
Autos Blamed for Retail Sales Slump, Dec 7 p 108
Commerce Studies Metal Industries Productivity, Nov 2 p 112
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Factory Operating Rate Static, Sept 7 p 196
Factory Output Drops Sharply, Nov 2 p 132
Factory Output Drops Sharply, Oct 5 p 132
How Can the 'Tech Mod' Improve Productivity, by R.R. Irving, Aug 12 p 67
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Plant Use Down; Steel to Blame, Nov 11 p 100
Team Concept Stressed in Productivity Confab, by G.J. McManus, Dec 7 p 45

PRODUCT LIABILITY
Senate Panel Drafts Product Liability Bill, Nov 11 p 21
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51

PROGRAMMABLE CONTROLLERS
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Automation Technologies Merge in Manufacturing, July 27 p 21
GE Expands Functions of Its Series 6 PC, Oct 14 p 26
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56

PROGRAMMING LANGUAGES
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76

PROJECT MANAGEMENT CORP.
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

THOMAS PROVENCHER
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

WILLIAM PROXMIRE
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13

PUNCH PRESSES
U.S. Amada Opens Plant in California, Nov 23 p 26

PSYCHOLOGY
If Managers Don't Mix, Then Effective Decisions Don't Get Made, by C.T. Post, Dec 7 p 49

PUBLIC OPINION
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

PURCHASING
Purchasers Report Few Gains in Output, Orders, Oct 14 p 21
Purchasers Troubled by High Interest Rates, Sept 28 p 20

PYROMETERS
Ratio Pyrometer from Britian, Nov 2 p MP-50

Q

A. J. QUACKENBUSH
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

QUALITY CONTROL
Calpro & Koppers Win Productivity Awards, Dec 7 p 46
Execs Rank Regulations, Costs Ahead of Quality, July 6 p 28
Failure Can be Hazardous to Health, by Roger Lopata, Aug 24 p 59

Management in America—Reshaping the Vision—Rebuilding Competitive Strength, by Michael Marley, Aug 3 p 43
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59
Steel Quality Starts with Recruitment of Talented Engineers, by G.J. McManus, Sept 7 p MP-33
A Tough Row to Hoe, by Gene Beaudet, July 15 p 7
What One Expert Says About Our Product Quality, by R.R. Irving, July 15 p 49
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

QUANEX CORP.
Accord Reached between Quanex and LaSalle, Dec 7 p 14
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

JANE B. QUINN
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

RAUL QUINTERO
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

R

RACKS
Centers Hesitate to Invest in Equipment,by K.W. Bennett, Oct 26 p 63

SCHRADE RADTKE
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

PAUL RADZIKOSKY
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

RAIL CARS
Quarterly Forecast, Oct 5 p 36

RAIL MILLS
How Contractors Will Meet Steel's Big Equipment Needs by G.J. McManus, Nov 2 p MP-18

RAILROADS
Chessie, Conrail Head for a Legal Collision, Aug 12 p 17
NARI Wants Railroads to End Shell Game, by R.J. Regan, Aug 3 p 70
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast Is the Outlook Still a Toss of the Coin? July 6 p 39
Rail Rates Lowered for Nonferrous Scrap, Nov 2 p 114

RAYMOND L. RAUSTON
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

RALPH RAMSAY
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

CHARLES RANGEL
Abuse Threatens Status of IRB Tax Exempts, by F.W. Bowers, Oct 14 p 55

JERRY RANIERE
Industry Faces Costly Remedies for Occupational Illness, by R.F. Harvey, Oct 14 p 67

MYER RASHISH
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by F.W. Bowers, Oct 26 p 30
Technology Exports to USSR Reviewed, Oct 5 p 18

ROBERT K. RAUTH
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

RAY-O-VAC CORP.
Inco ElectroEnergy Put Up for Auction, Dec 28 p 16

REACTORS
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

READING CO.
Reading Foresees Gain for Its OEM Subsidiary, Oct 14 p 26

RONALD REAGAN
Reagan 'Fully Supports' His Interior Secretary, Aug 24 p 17
Tax Cut Slimmer in Summer's Heat, July 7 p 21

REFRACTORY METALS
Dry Mix Materials Used to Reline Runners, Sept 7 p MP-5
Relining Furnaces by Dry-Mix Refractories, Nov 2 p MP-36

DONALD T. REGAN
Composite Index Signals Recession, Nov 23 p 148
Now About the Fat, Dumb, and Happy . . . , by Gene Beaudet, Oct 26 p 7
Quarterly Forecast Will Reaganomics Get a Chance to Work? by J.D. Baxter Oct 5 p 33
Were They Wrong for Chiding Business? by Gene Beaudet, Oct 14 p 7

RELIANCE ELECTRIC CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Are PC Systems the Answers to Factory Automation? by A.M. Greene, Oct 26 p 44
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

RELIANCE STEEL & ALUMINUM CO.
Profits are Down for West Coast Centers, Sept 28 p 119
Service Centers See Smaller Gains in 1982, Dec 28 p 58

REMOTE SENSING SYSTEMS
The Space Shuttle Goes Aloft for Its Second Test Flight, by G.A. Weimer, Nov 23 p 60

RENAULT CO.
AMC Turns to France for Parts for Its Front-Wheel-Drive Renaults, by B.H. Berry, Aug 3 p 19

RENAULT MACHINES OUTILS
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

RENISHAW ELECTRICAL LTD.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

WILLIAM B. RENNER
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40

REPAIRS
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

RESEARCH AND DEVELOPMENT
AISI Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
Composites Force Their Growth Rate by Performance by C.T. Post, Dec 7 p 57

REPUBLIC STEEL CORP.
AISI Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Republic Regroups Its Energy Businesses, Dec 7 p MP-3
Republic Brings On Line Electroslag Refining Unit, July 6 p MP-3
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel's Use of Computer Nears Mature Stage, Dec 7 p MP-15
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35

RESEARCH AND DEVELOPMENT
GM: Materials Research Will Transform the Car, Sept 16 p 19
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
R & D Tax Credits Need a Close Look, Nov 23 p 56
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

RESEARCH TRIANGLE PARK
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

JOHN RENSINK
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

RETAIL INDUSTRY
Autos Blamed for Retail Sales Slump, Dec 7 p 108
Business Inventories Climb in July, Sept 28 p 132
Retail Sales Show Weakness, Sept 28 p 132
Sales Can't Compete with Inflation, Nov 2 p 132

RETROFITTING
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

REVERE COPPER & BRASS CO.
Aluminum Output Sags as Year Nears Close, Dec 7 p 88

CALVIN REYNOLDS
Salaries for Overseas Managers are Soaring, Sept 16 p 42

DAVID P. REYNOLDS
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70

REYNOLDS METALS CO.
Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167
Aluminum Output Sets New Six-Month Record, by R.J. Regan, Aug 3 p 70
Aluminum Stocks Highest in Six Years, Nov 2 p 112
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67
Brazilian Bauxite Upsets Market, July 6 p 120
Can Stock Shipments Cheer Aluminum Mills, Oct 26 p 60
Is a Sluggish Aluminum Industry in Store for the Same in '82? by R.J. Regan, Oct 14 p 40

J. D. RICE
AISI Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

R. D. RIDGEWAY
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7

DONALD RIEGLE
Failure Can be Hazardous to Health, by Roger Lopata, Aug 24 p 59

RIGID MACHINE TOOL, INC.
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

W. S. RING
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

KENNETH RISKIND
Cerro Metal Plans Brass Rod Expansion, July 6 p MP-3

C. W. RITTERHOFF
AISI Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

DONALD A. ROACH
Labor Problems Plague Brown & Sharpe Plants, by R.J. Larsen, Nov 2 p 25

DONALD E. ROBBINS
Managing Maintenance Saves Costly Repairs, by A.M. Greene, July 6 p 79

C. A. ROBERTS CO.
Service Centers Oppose Trade Zone Proposal, July 6 p 122

JOHN ROBERTSON
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

ROBOTS
ASEA and ESAB Aim at U.S. Robot Market, Sept 28 p 29
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Nissan to Install 220 Robots at U.S. Plant, Oct 5 p 16
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, and P.J. Cathey, Nov 11 p 53
The Trend in Robots is Up and That's the Truth, Aug 24 p 25

GERALD V. ROCH
Hurco Enters the Big Time, by R.E. Harvey, Oct 14 p SP-14

HOWARD E. ROCKFETTE
Lung Cancer Risk Low for Aluminum Workers, Nov 2 p MP-7

ROCK ISLAND ARSENAL
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82

ROCKWELL INTERNATIONAL CORP.
. . . But Reagan's B-1 Decision Will Provide Work for Aerospace, Oct 14 p 17
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

D. M. RODERICK
AISI Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Imports Totals Can Prove Anything, Nov 11 p 85
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
U.S. Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16
USS Ups Credit Lines by $3 Billion, Aug 12 p 84

PETER RODINO
The Urge to Merge: The Climate Seems to Be Ripe, by F.W. Bowers, Sept 7 p 30

PAUL R. ROEDEL
Cartech Continues to Pour Its Profits into Expansion, by G.J. McManus, Sept 7 p MP-37

W. R. ROESCH
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25
U.S. Steel Revamps No. 13 and Pushes Out-put Higher, by K.W. Bennett, Oct 5 p MP-21

JOSEPH ROKOP
AISI Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33

ROLLER BEARINGS
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

ROLLING MILLS
Howmet to Start Up Cold Rolling Mill, Sept 28 p 116

A. C. ROOCHVARG
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76

FRANKLIN ROOT
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

KERMIT ROSEN
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89

ROBERT D. ROSHONG
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

DANIEL ROSTENKOWSKI
Tax Cut Slimmer in Summer's Heat, July 7 p 21

WALLACE C. RUDD
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

HAROLD RUHLMAN
Borg-Warner's Five-Speed Transmission Hot Item, July 27 p 13

MARVIN T. RUNYON
Nissan to Install 220 Robots at U.S. Plant, Oct 5 p 16

VINCENT RUSSO
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

RICHARD RUTH
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93

ROBERT RUTHERFORD
The Art of Negotiation Goes Beyond Bargaining Tables, by S.T. Parker, Oct 26 p 39

RUTHERFORD TRAINING WORKSHOPS, INC.
The Art of Negotiation Goes Beyond Bargaining Tables, by S.T. Parker, Oct 26 p 39

THOMAS RYAN
Abuse Threatens Status of IRB Tax Exempts, by E.W. Bowers, Oct 14 p 55

JOSEPH T. RYERSON & SON, INC.
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Chicago Service Centers Keep Things Moving, July 15 p 75
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
Ryerson Spends Big to Expand at Houston, Nov 11 p 88
Service Centers See More Action Ahead, Aug 12 p 89
Summer Softness Seeps into Service Centers, Aug 24 p 131
There's Moderate Optimism About Sales in '82, Dec 16 p 79

S

SIFCO FORGE GROUP
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

SKF INDUSTRIES, INC.
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

SMI AB
See: SMT-Pullmax Inc.

SMT-PULLMAX INC.
SMT-Pullmax Opens New Facility in Midwest, Dec 7 p 21

SACK & KIESSELBACK MASCHINENFABRIK GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

SAFETY
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

JOHN F. SAGUE
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

ST. JOE MINERALS CO.
Fluor Not Tying Its Future Strategy to One Industry, C.T. Post, July 15 p 28

EISHIRO SAITO
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53

SALARIES
Healthy Rise for Personal Income, Oct 5 p 132
Income Gets a Summer Bonus, Sept 7 p 196
Income Inches Ahead, July 15 p 34
Mining Execs Got Biggest Hikes in '80, Dec 16 p 29
Salaries for Overseas Managers are Soaring, Sept 16 p 42

SALEM FURNACE CO.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

SALOMON BROS., INC.
It's Now Catch 22 Finance, Says Kaufman, Nov 2 p 41

RONALD SAMPSON
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p53

SAN DIEGO COUNTY BUILDING AND CONSTRUCTION TRADES COUNCIL
Will Committees Make OSHA Enforcement a White Hat Job? by C.T. Post, Oct 5 p 73

SANDIA NATIONAL LABORATORIES
Implants Impart Wear Resistance to Alloy Surfaces, Sept 16 p 64

SANDVIK CORP.
Does Adaptive Control Still Promise Improved Productivity? by R.J Larsen, July 27 p 57

SAMUEL R. SAPIENZA
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

JOSEPH SCALISE
Joint Bargainers Dump Wheeling-Pittsburgh, Sept 7 p 21

EDWARD B. SCALZO
Are Machine Tool Builders Cutting It with Industry? by Iron Age Staff, Aug 24 p 77

SCANDIA LABORATORIES
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67

JOHN SCANLON
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67

JOHANNES P. SCHADE
Nickel Demand Revival Likely in '82, Dec 28 p 57

SCHARMANN GmbH & CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

JAMES E. SCHEILE
ITC Asked to Extend Fastener Protection, Sept 28 p 17

BENJAMIN SCHEMMER
Will Defense Spending be Inflationary? Sept 7 p 35

WALTER SCHENKER
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

SCHENUIT INDUSTRIES, INC.
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53

THOMAS SCHIFFO
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

MERREL F. SCHILLING
Expanding Roles of Service Center Seen in Oil Country, by S.T. Parker, Nov 23 p 33

R. R. SCHMARJE
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

SCHMARJE TOOL CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

EDWIN J. SCHMIDT
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

ROGER N. SCHMIDT
Efficient Boilers Could Yield Huge Savings, Sept 16 p 70

RALF SCHNEIDER
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18

ROBERT A. SCHNUBEL
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

RICHARD F. SCHUBERT
Talking Business, Nov 2 p 59

J. W. SCHUETZ
Who's First in Seamless Technology? by G.J. McManus, Sept 7 p MP-42

KARL B. SCHULTZ
Automation Technologies Merge in Manufacturing, July 27 p 21
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

JOHN L. SCICLUNA
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

SCIOTO METALS, INC.
Copper,Brass Centers Recover in September, Oct 5 p 112

RICHARD SCOFIELD
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

SCOT FORGE CO.
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

SCRAP
Joseph Builds to Supply Nucor Mill, Dec 7 p MP-3
July Scrap Exports Drop, Lowest Level Since '72, Sept 16 p 73
NARI Wants Railroads to End Shell Game, by R.J. Regan, Aug 3 p 70
Rail Rates Lowered for Nonferrous Scrap, Nov 2 p 114
Scrap Corp. to Build Giant Briquetting Plant, Oct 14 p 101
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

SCRAP CORP. OF AMERICA
Scrap Corp. to Build Giant Briquetting Plant, Oct 14 p 101

SCREW MACHINES
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast Is the Outlook Still a Toss of the Coin? July 6 p 39

EDWARD SEAGA
For Aluminum, Its's a Wide, Wide World, July 27 p 82
Jamaica Bauxite Buy Strategy or Politics? Dec 28 p 56
U.S. is Not Vulnerable to Any Bauxite Cutoff, Dec 16 p 75

STEVEN A. SEGAL
North American Sets Foot in Metalworking Industry, by R.E. Harvey, Aug 12 p 75

SEAMLESS MILLS
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18

SEAMLESS TUBING
Accord Reached between Quanex and LaSalle, Dec 7 p 14
Armco Spends on Seamless Tube Expansion, Sept 7 p 165
Japan's NKK Builds Seamless Tube Mill, Oct 5 p MP-5
USS Ups Its Capacity to Heat Treat OCTG, Nov 2 p MP-3
Who's First in Seamless Technology? by G.J. McManus, Sept 7 p MP-42

SECURITIES AND EXCHANGE COMMISSION
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

SEDCO, INC.
Commerce Issues Rules for Seabed Mining, Oct 5 p 19

EARL W. SEIGER
U.S. Steel Revamps No. 13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21

ROBERT SEKERKA
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

SELCOM CORP.
Mill Measuring, Nov 2 p MP-40

HAROLD L. SELIGMAN
Cutting Travel and Entertainment Expense Down to Size, by P.J. Cathey, Nov 23 p 65

SENSORS
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

THOMAS J. SERBIC
Plate and Shape Prices Up in a Slack Market, Sept 7 p 165

SERVICE CENTERS
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63
Centers Hurt, Not Helped by TPM, Nov 11 p 88
Chicago Service Centers Keep Things Moving, July 15 p 75
Copper and Brass Distributors Hit with Seasonal Slump, by K.W. Bennett, July 27 p 89
Copper,Brass Centers Recover in September, Oct 5 p 112
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93
Distributors Step Up Modernization Program, Nov 2 p 117
Expanding Roles of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
New England Centers Have Inventory Woes, Sept 7 p 173
Profits are Down for West Coast Centers, Sept 28 p 119
Ryerson Spends Big to Expand at Houston, Nov 11 p 88
Service Centers Oppose Trade Zone Proposal, July 6 p 122
Service Center Prospects Continue to Bloom, by K.W. Bennett, Aug 3 p 73
Service Centers See More Action Ahead, Aug 12 p 89
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
Service Centers See Smaller Gains in 1982, Dec 28 p 58
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74
Summer Softness Seeps into Service Centers, Aug 24 p 131
There's Moderate Optimism About Sales in '82, Dec 16 p 79

JOHN S. R. SHAD
Business Continues to Benefit from the Winds of Change in Washington, July 27 p 13
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

SHAPE WELDING
Shape Welding: A New Concept in Fabrication, by R.R. Irving, Nov 23 p 111

ANDREW G. SHARKEY
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Centers Hurt, Not Helped by TPM, Nov 11 p 88
Expanding Roles of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
Service Centers See More Action Ahead, Aug 12 p 89
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
There's Moderate Optimism About Sales in '82, Dec 16 p 79

SHARON STEEL CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

JACK SHEEHAN
OSHA to Remain in Place, Auchter Says, July 27 p 19

SHEET MOLDING COMPOUNDS
Pontiac's Plastic Car Likely to Use New SMC, Dec 28 p 17

LORAN SHEFFER
Offshore Rig Builders Moving Full Steam Ahead, by S.T. Parker, Sept 16 p 40

SHIELDALLOY CORP.
Book Review—Ferrous Metallurgy in a Nutshell, Sept 7 p 139

SHIN NIPPON KOKI CO. LTD.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

SHINAGAWA REFRACTORIES CO., LTD.
Dry Mix Materials Used to Reline Runners, Sept 7 p MP-5
Relining Furnaces by Dry-Mix Refractories, Nov 2 p MP-36

SHIPBUILDERS COUNCIL OF AMERICA
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48

SHIPBUILDING
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48
Electric Boat to Hasten Submarine Deliveries, Aug 24 p 21
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

RONALD SHRUM
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

RICHARD SHURTE
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

G. SIEMPELKAMP GmbH & CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

SIERCO, INC.
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

STEPHEN S. SIKES
Expanding Roles of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

DAVID SILEN
Borg-Warner-Mitsubishi Hook Up in Plastic Project, Aug 3 p 19

SILICON
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73

SILICON FERROALLOYS
Commerce Studies Allows' Impact on U.S. Security, Sept 16 p 13

SILVER
Silver Production Up in Indifferent Market, July 6 p 121

SILVER INSTITUTE
Silver Production Up in Indifferent Market, July 6 p 121

R. P. SIMMONS
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion by B.H. LeCerf, Sept 7 p MP-7
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12

MICHAEL SIMPSON
There's Moderate Optimism About Sales in '82, Dec 16 p 79

HUGH M. SINCLAIR
Hedge Overseas Bets with Risk Insurance, by P.J. Cathey, Aug 12 p 33

SINTER PLANTS
Outlook Good for Pellet, Sinter Plants Worldwide, Nov 2 p MP-3

LAWRENCE A. SKANTZE
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

CHARLES S. SKINNER
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

SLAB CASTERS
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18

SLABS
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

STERLING SLANGER
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

WILLIAM SLIPPY
Centers Hesitate to Invest in Equipmemt, by K.W. Bennett, Oct 26 p 63

DAVID SLOANE
Senate Panel Drafts Product Liability Bill, Nov 11 p 21

R. M. SMAILER
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

SMALL BUSINESS
Hurco Enters the Big Time, by R.E. Harvey, Oct 14 p SP-14
Piersol Pine Cuts Corners without Cutting Quality, by Roger Lopata, Oct 14 p SP-11
Planning for Growth: One Company's Approach, by K.W. Bennett, Oct 14 p SP-6
What Can Small Business Expect from Washington? by F.W. Bowers, Oct 14 p SP-1

H. W. SMITH
Summer Softness Seeps into Service Centers, Aug 24 p 131

KENNETH SMITH
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51

ROGER B. SMITH
Detroit Wants Changes in Clean Air Act Oct 26 p 14
GM Chairman Forecasts Healthier New Decade, July 6 p 22
Is the Auto Industry's Front-Wheel-Drive Strategy Backfiring? by B.H. Berry, Dec 7 p 35
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
Mini Car Market Blends GM and Suzuki, Sept 7 p 13
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36
UAW Opens the Door to Renegotiations, Dec 28 p 13

RODERICK L. SMITH
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

WILLIAM E. SMITH
The Urge to Merge: The Climate Seems to Be Ripe, by F.W. Bowers, Sept 7 p 30

SOCIAL SECURITY ADMINISTRATION
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

SOCIETY FOR THE ADVANCEMENT OF MATERIALS AND PROCESS ENGINEERING
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57

SODICK-INOVA INC.
EDM Growth in U.S. Yet to be Realized, July 27 p 21

DAVID SOHM
Shop Floor Data Closes the Loop in Factory Management, by A.M. Greene, Sept 28 p 75

SOLAR ENERGY
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49

SOLAR ENERGY RESEARCH INSTITUTE
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49

ALBERT T. SOMMERS
Will Big Wage Hikes Rekindle Inflation? July 27 p 41

SORALUCE S. COOPERATIVE OF SPAIN
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

SOUTH AMERICA
Come Join Us in Latin America, Says Ford, Aug 24 p 19

SOUTHWEST STEEL SUPPLY CO.
Distributors Step Up Modernization Program, Nov 2 p 117

SPACESAVER CORP.
Centers Hesitate to Invest in Equipment, by K.W. Bennett, Oct 26 p 63

SPACE SHUTTLE
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
The Space Shuttle Goes Aloft for Its Second Test Flight, by G.A. Weimer, Nov 23 p 60

SPACECRAFT
The Space Shuttle Goes Aloft for Its Second Test Flight, by G.A. Weimer, Nov 23 p 60

SPAIN
Spanish Tool Builders Raise Their U.S. Profile, Aug 12 p 15

JAMES SPARKMAN
Kaiser-Aluminum Output Cut But Still Tops 80's Pace, Sept 7 p 167

STUART SPATER
Fluid Bed's Benefits, Nov 2 p MP-32

SPECIALTY STEEL
Armco Bids Goodbye to Re-Bar Manufacture, Sept 7 p 171
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12

STEWART R. SPECTOR
World Aluminum Market Has Indigestion, by R.J. Regan, Aug 24 p 125

SPEED QUEEN CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

HANS SPELBRINK
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

HOWARD R. SPENDLOW, JR.
Book Review—Ferrous Metallurgy in a Nutshell, Sept 7 p 139

DIETER SPETHMANN
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53

CHARLES SPONSLER
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105

W. KENNETH SQUIRES, JR.
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

STAINLESS STEEL
Armco Starts Operation of Electronic Arc Furnace, Sept 7 p MP-3
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3
Implants Impart Wear Resistance to Alloy Surfaces, Sept 16 p 64
Oil Glut, High Interest Deal Solar a Double Whammy, by R.J. Regan, Nov 11 p 49
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74

STAMA MASCHINENFABRIK GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

JEFFREY STAMEN
Software: Making It Less Costly and More Available, by A.M. Greene, Nov 23 p 76

STAMPINGS
Bendix Stamps Axles for New Ford Trucks, Aug 24 p 19
Nissan to Install 220 Robots at U.S. Plant, Oct 5 p 16
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Stampings Shipments, Orders Up in September, Nov 23 p 24

STANDARD OIL CO. OF INDIANA
Commerce Issues Rules for Seabed Mining, Oct 5 p 19
Oil Companies Prowl the Merger Jungle, July 27 p 82

STANDARD OIL CO. OF OHIO
USS Steel Coal Deal with SOHIO, Oct 14 p 93

STANDUN, INC.
How One Company Created Markets for Its Technology, by C.T. Post, Sept 7 p 131

STANFORD UNIVERSITY
World Economic Growth Will be Limited, Nov 11 p 33

KELLY STANLEY
Mr. Stanley Goes to Washington and Talks to Congress, by F.W. Bowers, July 15 p 43

JAMES E. STARNES
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

FRANK J. STARR
Detroit's Auto Industry Wrestles with Machine Downtime, by B.H. Berry, Sept 16 p 30

STEEL
AISE Notes Emphasis of Foreign R & D in U.S. Industry, by G.J. McManus, Oct 5 p MP-33
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14
Chicago Service Centers Keep Things Moving, July 15 p 75
Commerce Department Probing Steel Imports, Aug 24 p 20
Educator Feels the TPM is a Good Compromise, Oct 26 p 61
GM: Materials Research Will Transform the Car, Sept 16 p 19
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrzut, Oct 14 p 73
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29
Justice, Commerce Act on Steel Imports, July 15 p 16
Low Sulfur Steel Plates, Nov 2 p MP-46
Mill Measuring, Nov 2 p MP-40
Must Reading for the Powers that Be, by Gene Beaudet, Nov 2 p 7
New England Centers Have Inventory Woes, Sept 7 p 173
Profits are Down for West Coast Centers, Sept 28 p 119
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Service Centers Oppose Trade Zone Proposal, July 6 p 122
Service Centers See More Action Ahead, Aug 12 p 89
Service Centers See Smaller Gains for 1982, Dec 28 p 58
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Import Totals Can Prove Anything, Nov 11 p 85
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Summary: Users Still Cutting Stocks, Dec 7 p 88
Trade Deficit Declined $5.6 Billion in August, Oct 14 p 23

Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

STEEL CO. OF CANADA, LTD.
World Ironmaking: Everyone is Getting into the Act by G.J. McManus, Aug 3 p MP-5

STEEL INDUSTRY
Adhere to TPM, Baldrige Warns Europeans, Oct 5 p 16
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Air/Water Clean-Up Costs Stunt Steel's Growth, by P.J. Cathey, Sept 7 p MP-55
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Before Things Rise, Something Must Fall, by Gene Beaudet, Sept 7 p 7
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20
Domestic Steel Growth Will be Slow, OTA Says, Sept 7 p MP-3
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13
Educator Feels the TPM is a Good Compromise, Oct 26 p 61
Gov't Fears Trade War if TPM is Lost, by E.W. Bowers, Dec 7 p 19
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18
IISI: Cautious Forecast for '82, by L.R. Goldwater, Dec 7 p MP-23
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13
Justice, Commerce Act on Steel Imports, July 15 p 16
Kaiser Will Shut Down Steelmaking Operations, Nov 23 p 20
Must Reading for the Powers that Be, by Gene Beaudet, Nov 2 p 7
Plant Use Dips Lower; Steel Mills Hit, Dec 7 p 108
Plant Use Down; Steel to Blame, Nov 11 p 100
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast: Is the Outlook Still a Toss of the Coin? July 6 p 39
Some Clinches and Questions About Trade, by Gene Beaudet, Dec 7 p 7
Specialty Steelmakers Seek Import Curbs, by Gene Beaudet, Dec 16 p 12
Steel at Crossroads: But in Better Shape, by P.J. Cathey, Aug 3 p 41
Steel Gets Break on Clean Air Regulations, Aug 3 p 15
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Industry: Capital Spending Surges, July 27 p 82
Steel Industry's on the Road Back, AISI Says, July 7 p 21
Steel Leery of European Import Restraint, Dec 28 p 13
Steel Quality Starts with Recruitment of Talented Engineers, by G.J. McManus, Sept 7 p MP-33
Steel Returns Economist's Blast with One of Its Own, Aug 3 p 15
Steel Slump Brings Cut in Iron Ore Activity, Dec 7 p 88
Steel Summary: Import Pattern Broadens, Sept 16 p 70
Steel Summary: Import Issue Heats Up, Europeans Want Out on TPM, by G.J. McManus, Aug 3 p 70
Steel Summary: Import Surge Causes Concern, July 15 p 71
Steel Summary: Imports 30 Pct. Over '80 Pace, Dec 16 p 75
Steel Summary: Market Slump Shouldn't Last, Nov 2 p 111
Steel Summary: Mill Shipments Drop a Bit, July 6 p 119
Steel Summary: Mills Firm on Import Issue, Nov 23 p 128
Steel Summary: Mills Push Dumping Suits, Oct 26 p 60
Steel Summary: Mills Want Direct Action on Imports, Oct 14 p 93
Steel Summary: '81 Shipments Estimates Fall, Sept 7 p 165
Steel Summary: Oil Country Sales Turn Mills On, by G.A. Weimer, Aug 24 p 125
Steel Summary: Order Lag Worries Mills, Oct 5 p 111
Steel Summary: Orders Show Signs of Pickup, Dec 28 p 56
Steel Summary: Output Cuts are Inevitable, Sept 28 p 115
Steel Summary: Slow Demand Cuts Shipments, Nov 11 p 85
Steel Summary: Summer Slump Bottoms Out, by G.J. McManus, Aug 12 p 84
Steel Summary: Users Still Cutting Stocks, Dec 7 p 88
Steel Turns a Corner; Nonferrous Drops Back, by G.J. McManus and R.J. Regan, Aug 12 p 41
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Talking Business, Nov 2 p 59
Team Concept Stressed in Productivity, Confab, by G.J. McManus, Dec 7 p 45
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16
Will Steel Spending Plans Stay on Track? by Gene Beaudet, Oct 5 p 7
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

STEELMAKING
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25
Inland Steel's Keeping Pace with Auto Industry Needs, by K.W. Bennett, Oct 5 p MP-29
The Inred Process: An Ironmaking Option, by R.R. Irving, July 6 p MP-21
J&L's Pollution Control Stresses Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9
Steel's Use of Computer Nears Mature Stage, Dec 7 p MP-15
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31
U.S. Steel Revamps No. 13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21

STEEL MILLS
AISI Special Report: Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14
Plant Use Dips Lower; Steel Mills Hit, Dec 7 p 108
Steel Quality Starts with Recruitment of Talented Engineers, by G.J. McManus, Sept 7 p MP-33
Steel Summary: Mill Shipments Drop a Bit, July 6 p 119
Steel Summary: Mills Want Direct Action on Imports, Oct 14 p 93
Steel Summary: Order Lag Worries Mills, Oct 5 p 111

STEEL PLATE FABRICATORS ASSN.
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36

STEEL SERVICE CENTER INSTITUTE
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Centers Hurt, Not Helped by TPM, Nov 11 p 88
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33
Service Centers Oppose Trade Zone Proposal, July 6 p 122
Service Centers See More Action Ahead, Aug 12 p 89
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74
There's Moderate Optimism About Sales in '82, Dec 16 p 79

STEELMAKING
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

STEIGER TRACTOR, INC.
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

HANS U. STEIN
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

BERNHARDT STEINEL WERKZUGMASCINENFABRIK GmbH & CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

NORBERT STENGEL
Planning for Growth: One Company's Approach, by K.W. Bennett, Oct 14 p SP-6

GARY M. STEPHENS
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

ROBERT STERNE
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36

KENNETH STEVENS
Chicago Service Centers Keep Things Moving, July 15 p 75

DON STILLMAN
AMC Asks Workers to Invest Wages, by B.H. Berry, Dec 7 p 17

LORAN STOAKES
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

JOHN STOCKARD
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

DAVID STOCKMAN
Reagan Puzzles Synfuels Industry, Halts Fued, Aug 12 p 17

FRANK L. STONEKING
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

J. R. STOVER
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

SIMON D. STRAUSS
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
Strauss Cites Minerals Role of Third World, Oct 5 p 109
U.S. Policies Impare Mining, Says Strauss, Nov 2 p 29

STRETCHING
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114

DANIEL STRICKLAND
Aviation Markets Slow, Steel Shipments Up, Oct 14 p 105

HERBERT F. STRINER
Automation Will be Key to Auto Industry Talks, Nov 23 p 16

STRIP MILLS
AISI Special Report: Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

STRIPPIT DIV.
Coherent Enters Laser Metal Cutter Market, Dec 28 p 18

STRUCTURAL DYNAMICS RESEARCH CORP.
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48
GE Forms Venture to Market CAE Software, Nov 23 p 26
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56

STRUCTURAL STEEL
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101

SUBMARINES
Electric Boat to Hasten Submarine Deliveries, Aug 24 p 21

SUBMERGED ARC WELDING
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

LARRY C. SUGG
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Times, by B.H. Berry, Nov 11 p 34

NAM P. SUH
Cheaper Route to New Metals, Ceramic Alloys, Oct 5 p 93

SUMITOMO HEAVY INDUSTRIES, LTD.
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18
Look Who's Being Cut Out of Top Jobs in the U.S., by S.T. Parker, Aug 3 p 35
Who's First in Seamless Technology? by G.J. McManus, Sept 7 p MP-42
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

SUMITOMO SHOJI AMERICA, INC.
Supreme Court to Hear Japanese Job Bias Suit, Dec 16 p 17

SUN OIL CO.
Commerce Issues Rules for Seabed Mining, Oct 5 p 19

SUNBEAM CORP.
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53

SUPERALLOYS
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

SURFACE MINING
Surface Mining Rules Freeze Technology, Sept 28 p 25

SURVEYS
Consumers Loosing Confidence, Oct 14 p 116

DAVID SUTLIFF
Troubles Still Plague Construction Equipment, by K.W. Bennett, Dec 16 p 37

GEORGE P. SUTTON
Researchers Spread News of Flexible Manufacturing, by R.J. Larsen, Sept 7 p 99

ZENDO SUZUKI
Trade Delegates Weigh Trilateral Proposal, Sept 28 p 13

SUZUKI MOTOR CO., LTD.
Mini Car Market Blends GM and Suzuki, Sept 7 p 13

ROGER SWAIN
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75

SWEDEN
SMT-Pullmax Opens New Facility in Midwest, Dec 7 p 21
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

ROBERT SWERINGEN
Copper,Brass Centers Recover in September, Oct 5 p 112

SWINDELL-DRESSLER FURNACE DIV.
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20

STEBEN SYMMS
Clean Air Reform Sinks into the Congressional Mud, by E.W. Bowers, Dec 7 p 41

SYNTHETIC FUELS
DOE Awards Its Final Synfuel Grants, Aug 24 p 20
Glimmer Fades from Synfuels' Pot of Gold, July 6 p 25
Reagan Puzzles Synfuels Industry, Halts Fueds, Aug 12 p 17
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene, P.J. Cathey, Nov 11 p 53

SYNTHETIC FUELS CORP.
Reagan Puzzles Synfuels Industry, Halts Fued, Aug 12 p 17

SYNTHETIC LUBRICANTS
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

T

TRW, INC.
As Prime Goes Up, Bill Paying Goes Down, Aug 12 p 36
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

TSAI-SPECTOR RESEARCH ASSOCIATES, INC
World Aluminum Market Has Indigesiton, by R.J. Regan, Aug 24 p 125

IRVING R. TABERSHAW
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

TABERSHAW OCCUPATIONAL MEDICAL ASSOC.
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

KEI TAKADA
Kubota Takes Aim at Its U.S. Markets, Nov 23 p 129

T. E. TALLIAN
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

TANKS (ORDNANCE)
XM-1 Can't Shake Its Shortcomings, Dec 7 p 21

TANTALUM
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31

WALTER R. TARBERT
Davy McKee Still Believes in the Metal Industry, by G.A. Weimer, Nov 2 p MP-20

TARIFFS
Fastener Makers Seek Duty Extension, July 15 p 19
Service Centers Oppose Trade Zone Proposal, July 6 p 122
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12

F. FRED TATUM
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

TAXES
Abuse Threatens Status of IRB Tax Exempts, by F.W. Bowers, Oct 14 p 55
Akan Sues California on Tax Issue, by G.J. McManus, Aug 3 p 71
Are We Expecting Too Much, Too Soon? by Gene Beaudet, Oct 5 p 7
Flash! There's More to the News than Bad News, by Gene Beaudet, Dec 7 p 7
Industry Gets Its Long Awaited Day on Capitol Hill as the House Passes Reagan's Tax Cut Bill, Aug 12 p 13
It Now Depends On Us, by Gene Beaudet, Aug 24 p 7
R & D Tax Credits Need a Close Look, Nov 23 p 56
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Tax Bill Continues to Stir Heated Debate, Aug 3 p 17
Tax Cut Slimmer in Summer's Heat, July 7 p 21
The Tax Package: What It Does, What It Doesn't, by Roger Lopata, Sept 7 p 45
Warding Off Prophets of Gloom, by Gene Beaudet, Dec 16 p 7
What Can Small Business Expect from Washington? by F.W. Bowers, Oct 14 p SP-1
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58
Will Tax Credits Spark Industry to Pick Up the Tab for R & D? by R.E. Harvey, Nov 23 p 51
Would You Believe a Long, Hot Winter? by Gene Beaudet, July 27 p 7

A. T. TAYLOR
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

EDWARD TAYLOR
Nitriding Conquers Its Cyanide Problems, July 6 p 95

TECHNICAL INFORMATION
Armco & Nippon Take Technical Exchange One Step Further, by G.J. McManus, July 6 p MP-14

TECHNOLOGY
But Are We Building Anything? by Gene Beaudet, Aug 3 p 7
GE's Grierson Corrals High Technology, by A.M. Greene, Dec 16 p 56
How One Company Created Markets for Its Technology, by C.T. Post, Sept 7 p 131
Lockheed-Georgia Advances Technology, by A.M. Greene, Sept 7 p 114
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Technology Exports to USSR Reviewed, Oct 5 p 18
Technology's Input is Vital to Sound Business Planning, by P.J. Cathey, Sept 16 p 43

TECHNOLOGY TRANSFER
AISE Special Report Steel Turns Loose Capital Spending Project Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

TELEDYNE MCKAY CO.
Is Subare Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

TEMPERING
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

TENNESSEE VALLEY AUTHORITY
TVA Plant Will Test Fluid Bed Process, Oct 5 p 21

TEREX CORP.
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

TERMINAL COMMERCIAL CO., INC.
Justice, Commerce Act on Steel Imports, July 15 p 16

TAKEO TERQAKA
Justice, Commerce Act on Steel Imports, July 15 p 16

JOHN TESTAMENT
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67

TESTING AND INSPECTION
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

TEXAS
Theft in the Oilfield Will Cost Plenty, Aug 3 p 20

TEXASGULF INC.
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by F.W. Bowers, Oct 26 p 30
Copper Takeover Derby Runs at Full Speed, July 15 p 73
Oil Companies Prowl the Merger Jungle, July 27 p 82

TEXAS INSTRUMENTS, INC
Board Level Computers: Building Blocks for Industrial Control, by A.M. Greene, Aug 24 p 67

TEXTRON, INC
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

PAUL THAYER
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47

THEFT
Theft in the Oilfield Will Cost Plenty, Aug 3 p 20

ERIC THEIS
Service Centers See Smaller Gains in 1982, Dec 28 p 58

THERMATOOL CORP.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

JOHN M. THOMPSON
Line Managers Move from MIS to DSS for Decision-Making Help, by J.D. Baxter, Sept 28 p 71

R. H. THOMPSON
Climax Reduces Its Molybdenum Production, Sept 28 p 116

THRALL CAR MFG. CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

3M CO.
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

THYSSEN DRAHT AG
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75
Shape Welding: A New Concept in Fabrication, by R.R. Irving, Nov 23 p 111

AUGUST-THYSSEN-HUTTE AG
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53

ANDREW TIDEMAN
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

TIMKEN CO.
AISE Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
Steel Industry: Capital Spending Surges, July 27 p 82

TIN MILLS
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7

TINPLATE
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7

G. W. TIPPINS
AISE Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

TIPPINS MACHINERY CO.
AISE Special Report- Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

TITANIUM
Implants Impart Wear Resistance to Alloy Surfaces, Sept 16 p 64
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31
Solving the Engineering Problems of Tomorrow's Aircraft Industries, by C.T. Post, Aug 12 p 60

TITANIUM METALS CORP. OF AMERICA
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53

GEOFFREY TITHER
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

JIRI TLUSTY
Boston Digital Unveils New Turning Machine, July 15 p 20
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

TOCCO DIV.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

TODD SHIPYARDS CORP.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48

DAVID M. TOME
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

TOOL AND DIE INDUSTRY
Planning for Growth: One Company's Approach, by K.W. Bennett, Oct 14 p SP-6

JAMES TOSCAS
Nuclear Industry Recharged for a New Wave of Growth, by R.E. Harvey, Aug 12 p 47

TOSHIBA MACHINE CO. LTD.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

TOUCHE, ROSS & CO.
Cutting Travel and Entertainment Expense Down to Size, by P.J. Cathey, Nov 23 p 65

JOHN TOWERS
In Ireland, Industry is in Clover, by Michael Marley, Sept 28 p 56

TOWERS, PERRIN, FORSTER & CROSBY, INC
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51

TOXIC SUBSTANCES
Nitriding Conquers Its Cyanide Problems, July 6 p 95

TOYODA MACHINE WORKS LTD.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

TRACTORS
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

TRAINING PROGRAMS
The Art of Negotiation Goes Beyond Bargaining Tables, by S.T. Parker, Oct 26 p 39
Automation Will be Key to Auto Industry Talks, Nov 23 p 16
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

TRANSMISSION SYSTEMS
Borg-Warner's Five-Speed Transmission Hot Item, July 27 p 13

HERMANN TRAUB GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

DONALD H. TRAUTLEIN
Bethlehem Modernizes at $750 Million Cost, Aug 12 p 18

TRAVEL AND LIVING
Cutting Travel and Entertainment Expense Down to Size, by P.J. Cathey, Nov 23 p 65

TRAVELERS INSURANCE CO.
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

ROBERT TRAXLER
Detroit Wants Changes in Clean Air Act, Oct 26 p 14

JAMES TREIBLE
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52

TRIGGER PRICES
Adhere to TPM, Baldrige Warns Europeans, Oct 5 p 16
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Centers Hurt, Not Helped by TPM, Nov 11 p 88
Commerce Department Probing Steel Imports, Aug 24 p 20
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13
Educator Feels the TPM is a Good Compromise, Oct 26 p 61
Gov't. Fears Trade War if TPM is Lost, by F.W. Bowers, Dec 7 p 19
ITC Asked to Extend Fastener Protection, Sept 28 p 17
Justice, Commerce Act on Steel Imports, July 15 p 16
Must Reading for the Powers that Be, by Gene Beaudet, Nov 2 p 7
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Leery of European Import Restraint, Dec 28 p 13

Steel Summary: Import Issue Heats Up, Europeans Want Out on TPM, by G.J. McManus, Aug 3 p 70
Steel Summary: Import Surge Causes Concern, July 15 p 71
Steel Summary: Imports 30 Pct. Over '80 Pace, Dec 16 p 75
Steel Summary: Mills Push Dumping Suits, Oct 26 p 60
Steel Summary: Mills Want Direct Action on Imports, Oct 14 p 93
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Talking Business, Nov 2 p 59
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16

TRINIDAD AND TOBAGO
Trinidad & Tobago Launches Steel Independence, by B.H. LeCerf, Aug 3 p MP-31

ROBERT TROJAN
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

TRUCKS
Fruehauf Lightens Load over the Long Road, Nov 2 p 31

PIERRE E. TRUDEAU
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by F.W. Bowers, Oct 26 p 30

TRUMPF GmbH & CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

TSCHUDIN WERKZEUGMASCHINENFABRIK
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

STEVEN TSENGAS
Two Managers Who Aren't Running One-Man Shows, by G.A. Weimer, Nov 23 p 73

TUBING
Armco Hits a Gusher in Oil Country Sales, Nov 2 p 26
Armco Spends on Seamless Tube Expansion, Sept 7 p 165
Central Steel Adds to Oil Country Capacity, Oct 5 p MP-3
Copperweld Bets Big on Tubing Expansions, Aug 24 p 125
Heat Treating Facility to Meet Tubing Demand, Sept 7 p MP-1
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast Is the Outlook Still a Toss of the Coin? July 6 p 39
Specialty's Tubing on the Rebound, B & W Says, by S.T. Parker, Oct 14 p 25
Steel Import Totals Can Prove Anything, Nov 11 p 85
Who's First in Seamless Technology? by G.J. McManus, Sept 7 p MP-42

TURBINE BLADES
The Dynamic World of Jet Engine Materials, by R.R. Irving, Sept 28 p 109
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

TURNING MACHINES
Boston Digital Unveils New Turning Machine, July 15 p 20
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

U

U.S. FASTENER MANUFACTURING GROUP
ITC Asked to Extend Fastener Protection, Sept 28 p 17

U.S. GEOLOGIC SURVEY
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63

U.S. MACHINE TOOL TASK FORCE
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
Researchers Spread News of Flexible Manufacturing, by R.J. Larsen, Sept 7 p 99

U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Copper Prices Move in a Narrow Range, Oct 26 p 61

U.S. NAVAL MATERIAL COMMAND
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

U.S. STEEL CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25
Failure Can be Hazardous to Health, by Roger Lopata, Aug 24 p 59
Heat Treating Facility to Meet Tubing Demand, Sept 7 p MP-1
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7
Plate and Shape Prices Up in a Slack Market, Sept 7 p 165
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Import Totals Can Prove Anything, Nov 11 p 85
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Leery of European Import Restraint, Dec 28 p 13
Steel Summary: Capital Spending Surges, July 27 p 82
Steel Summary: Imports 30 Pct. Over '80 Pace, Dec 16 p 75
U.S. Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16
U.S. Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14
U.S. Steel Revamps No. 13 and Pushes Output Higher, by K.W. Bennett, Oct 5 p MP-21
USS Seals Coal Deal with SOHIO, Oct 14 p 93
USS Ups Credit Lines by $3 Billion, Aug 12 p 84
USS Ups Its Capacity to Heat Treat OCTG, Nov 2 p MP-3
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

U.S. STEEL SUPPLY DIV.
Chicago Service Centers Keep Things Moving, July 15 p 75
Service Centers See Smaller Gains in 1982, Dec 28 p 58

U.S. SYNTHETIC FUELS CORP.
Glimmer Fades from Synfuels' Pot of Gold, July 6 p 25

U.S. TRADE REPRESENTATIVE
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by F.W. Bowers, Oct 26 p 30
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Reagan Nixes North American Trade Group, Sept 7 p 15
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12

UNDERSEA MINING
Commerce Issues Rules for Seabed Mining, Oct 5 p 19

UNDERSEA TECHNOLOGY
Commerce Issues Rules for Seabed Mining, Oct 5 p 19

UNEMPLOYMENT
Consumers Pessimistic About Jobs, Dec 7 p 108
Failure Can be Hazardous to Health, by Roger Lopata, Aug 24 p 59
Help Wanted: Need More Jobs, Nov 23 p 148
Jobless Rate Climbs Still Higher, Dec 28 p 68
Jobless Rate Rises to 8 Million, Oct 26 p 76
Softening the Blow of a Plant Closing, by G.A. Weimer, Sept 7 p 73

UNIMA MASCHINENBAU GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

UNIMATION, INC.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
The Trend inRobots is Up-and That's the Truth, Aug 24 p 25

UNION CARBIDE CORP.
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57
Composite Makers Still Wait for a Breakthrough, by R.J. Regan, Aug 12 p 76
Why Chromium is the Most Critical of All Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

UNITED AUTO WORKERS
AMC Asks Workers to Invest Wages, by B.H. Berry, Dec 7 p 17
Automation Will be Key to Auto Industry Talks, Nov 23 p 16
Autoworkers Adapting to New Workstyles, Nov 11 p 19
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
Detroit's Productivity Can't Cross Lines of Demarcation, by B.H. Berry, Sept 28 p 41
Fraser: Give Us Jobs and We'll Do the Job, Sept 28 p 13
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29
UAW Opens the Door to Renegotiation, Dec 28 p 13
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

UNITED KINGDOM
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

UNITED MINE WORKERS OF AMERICA
Both Sides Were Losers in 72-Day Coal Strike, July 6 p 28

UNITED RUBBER WORKERS
Will Big Labor Trade Security for Dollars in'82 Wage Talks? by G.J. McManus, Oct 26 p 25

UNITED STEELWORKERS OF AMERICA
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
ITC Asked to Extend Fastener Protection, Sept 28 p 17
Labor Displeased with New Inflation Index, Nov 11 p 21
McBride Unruffled by Wage Moderation Call, Sept 16 p 73
OSHA to Remain in Place, Auchter Says, July 27 p 19
Specialty Steelmakers Seek Import Curbs, by G.J. McManus, Dec 16 p 12
Steel Summary: Slow Demand Cuts Shipments, Nov 11 p 85
Team Concept Stressed in Productivity Comfab, by G.J. McManus, Dec 7 p 45
U.S Steel Reaches Out for Marathon Oil in History Making Merger, by G.J. McManus, Dec 16 p 45
U.S. Steel Ready to Hook Up with Marathon Oil Co., by G.J. McManus, Dec 7 p 14
Will Big Labor Trade Security for Dollars in '82 Wage Talks, by G.J. McManus, Oct 26 p 25

UNITED TECHNOLOGIES CORP.
Pratt & Whitney Builds Factory of the Future, Dec 7 p 19
Tongue-Tied U.S. Execs Inflict Toll on Trade, by K.R. Moldt, July 6 p 75

UNITED TEXAS TRANSMISSION CO.
Two Texas Pipelines Receive a Go-Ahead, Aug 3 p 20

UNIVAC DIV
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

UNIVERSAL FOUNDRY CO.
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39

UNIVERSITY OF MICHIGAN
Expansion Due in 1982-83 Period? Sept 16 p 84
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J.D. Baxter, Nov 2 p 43

UNIVERSITY OF PENNSYLVANIA
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

UNIVERSITY OF ROCHESTER
The Urge to Merge: The Climate Seems to Be Ripe, by E.W. Bowers, Sept 7 p 30

UNIVERSITY OF SOUTHERN CALIFORNIA
Human Training Cuts Engineering Attrition, Dec 7 p 51
If Managers Don't Mix, Then Effective Decisions Don't Get Made, by C.T. Post, Dec 7 p 49

DONALD G. UPTON
Preventing Defects through Statistical Quality Control, by B.H. Berry, Oct 14 p 59

GERALD D. UTTRACHI
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55

UNR INDUSTRIES, INC.
Service Centers Oppose Trade Zone Proposal, July 6 p 122

USI-NOR CO.
American Steel Makers Prepare Dumping Suits, by G.J. McManus, Nov 2 p 53

U.S.S.R.
Caterpillar to Sell Pipelayers to Soviets, Sept 16 p 20
IH to Sell Combine Technology to Soviets, Dec 16 p 17
Reshaping the Vision Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
Technology Exports to USSR Reviewed, Oct 5 p 18

U.S. AIR FORCE
Metals Industries Waiting for Reagan's Minerals Policy, by R.J. Regan, Dec 16 p 31

U.S. AIR FORCE MANUFACTURING TECHNOLOGY DIV.
Flexible Manufacturing: The Technology Comes of Age, by R.J. Larsen, Sept 7 p 82
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

U.S. AIR FORCE MATERIALS LABORATORY
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

U.S. AMADA, LTD.
U.S. Amada Opens Plant in California, Nov 23 p 26

U.S. ARMY DEVELOPMENT AND READINESS COMMAND
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81

U.S. ARMY OFFICE OF MANUFACTURING TECHNOLOGY
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67

U.S. ARMY TANK AUTOMOTIVE COMMAND
Researchers Spread News of Flexible Manufacturing, by R.J. Larsen, Sept 7 p 99

U.S. BUREAU OF LABOR STATISTICS
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22
Help Wanted: Need More Jobs, Nov 23 p 148
Inflation Just Keeps Rolling Along, Sept 16 p 84
Jobless Rate Climbs Still Higher, Dec 28 p 68
Labor Displeased with New Inflation Index, Nov 11 p 21

U.S. BUREAU OF MINES
Aluminum Output Won't Match 1980 Record, Oct 14 p 93
Aluminum Stocks Highest in Six Years, Nov 2 p 112
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
Primary Aluminum Production Declines, Sept 28 p 115

U.S. CONGRESS
Consult Us on B-1, Congress Warns Reagan, July 28 p 15
Mr. Stanley Goes to Washington and Talks to Congress, by E.W. Bowers, July 15 p 43

U.S. DEPARTMENT OF COMMERCE
Adhere to TPM, Baldrige Warns Europeans, Oct 5 p 16
All Quiet on American Congress Front, Oct 14 p 97
As Barter Business Booms, Some Firms Miss the Boat, by Roger Lopata, Oct 14 p 45
Auto: Blamed for Retail Sales Slump, Dec 7 p 108
Building Contracts Stable, But Low, Oct 26 p 76
Business Inventories Climb in July, Sept 28 p 132
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by E.W. Bowers, Oct 26 p 30
Caterpillar to Sell Pipelayers to Soviets, Sept 16 p 20
Commerce Issues Rules for Seabed Mining, Oct 5 p 19
Commerce Studies Alloys' Impact on U.S. Security, Sept 16 p 13
Commerce Studies Metal Industries Productivity, Nov 2 p 112
Composite Index Signals Recession, Nov 23 p 148
Detroit's Woes Affect Machine Tool Builders, Dec 16 p 13
Domestic Steelmakers Delay Dumping Suits, Dec 16 p 12
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
GNP Drops in Third Quarter, Nov 11 p 100
GNP Off 1.6 Pct. in 2nd Quarter, Oct 14 p 116
Gov't Fears Trade War if TPM is Lost, by E.W. Bowers, Dec 7 p 19
Healthy Rise for Personal Income, Oct 5 p 132
Home Building Slumps Further, Dec 16 p 92
Home Construction Still in the Cellar, Sept 7 p 196
Housing Starts Decline, Nov 2 p 132
How Metalworking Can Beat Inflation Using 'Real' Dollars, by J.D. Baxter Nov 2 p 43
IH to Sell Combine Technology to Soviets, Dec 16 p 17
Income Gets a Summer Bonus, Sept 7 p 196
Income Inches Ahead, July 15 p 34
Indicators Sour, July 27 p 44
Justice, Commerce Act on Steel Imports, July 15 p 16
Leading Indicators Down Again, Sept 28 p 132
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31
New Home Sales Hit All-Time Low, Nov 23 p 148
Now About the Fat, Dumb and Happy . . . . by Gene Beaudet, Oct 26 p 7
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Retail Sales Show Weakness, Sept 28 p 132
Sales Can't Compete with Inflation, Nov 2 p 132
Slight GNP Rise is Deceptive, Dec 16 p 92
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? by F.W. Bowers, Aug 24 p 34
Steel Imports Weigh U.S. Producers Down, Oct 14 p 23
Steel Leery of European Import Restraint, Dec 28 p 13
Steel Summary: Import Surge Causes Concern, July 15 p 71
Steel Summary: Mills Firm on Import Issue, Nov 23 p 128
Steel Summary: Mills Push Dumping Suits, Oct 26 p 60
Steelmakers Question TPM Effectiveness, by G.J. McManus, July 15 p 35
Technology Exports to USSR Reviewed, Oct 5 p 18
Trade Deficit Declined $5.6 Billion in August, Oct 14 p 23
Trade Deficit Slumps to $2.6 Billion, Nov 23 p 17
Trade Shortfall Deepens Further in October, Dec 16 p 13
U.S. Steel Ready to Broaden the Battle Against Imports, Nov 23 p 16
Were They Wrong for Chiding Business? by Gene Beaudet, Oct 14 p 7

U.S. DEPARTMENT OF DEFENSE
. . . But Reagan's B-1 Decision Will Provide Work for Aerospace, Oct 14 p 17
Confusion Surrounds Proposed Defense Cuts, Sept 16 p 13
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
How Can the 'Tech Mod' Improve Productivity? by R.R. Irving, Aug 12 p 67
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49

U.S. DEPARTMENT OF ENERGY
DOE Awards Its Final Synfuel Grants, Aug 24 p 20
GE/DOE "Hybrid" Auto Nears Countdown, Sept 16 p 64
New Design & Materials May Aid Power Transmission Beat the High Cost of Energy, by G.A. Weimer, July 15 p 52
Nuclear Industry Recharged for a New Wave of Growth, by R.E. Harvey, Aug 12 p 47
Nuclear Power May Move Out of Doldrums, Aug 24 p 21
Reagan Says No Funds for Alaska Pipeline, Nov 11 p 24
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

U.S. DEPARTMENT OF THE INTERIOR
All Quiet on American Congress Front, Oct 14 p 97
Cobalt Could be Mined in U.S., Interior Says, Sept 16 p 71
Metals Industries Waiting for Reagan's Minerals Policies, by R.J. Regan, Dec 16 p 31
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
Reagan 'Fully Supports' His Interior Secretary, Aug 24 p 17
Reagan's Minerals Policy Will Remove Impediments, Nov 23 p 20

U.S. DEPARTMENT OF JUSTICE
Antitrust Legislation Head for Capitol Hill, Sept 28 p 17
Justice, Commerce Act on Steel Imports, July 15 p 16
Justice to Apply 'Rule of Reason' to Anti-Trust, Oct 5 p 13
Merger Guidelines Fuzzy, Says Antitrust's Baker, Sept 16 p 20
The Urge to Merge: The Climate Seems to Be Ripe, by F.W. Bowers, Sept 7 p 30

U.S. DEPARTMENT OF LABOR
CPI Up 0.8 Pct.; Housing Costs Ease, Oct 14 p 116
Housing Costs Boost CPI, Nov 11 p 100
Inflation Pace Begins to Moderate, Dec 16 p 92
Jobless Rate Rises to 8 Billion, Oct 26 p 76
LTV-Grumman Merger Fails to Get Off the Ground, by S.T. Parker, Dec 16 p 47
Prices Cool Further—Except for those Wild Auto Tags, Dec 7 p 33
Reagan Tries to Trim Construction Wages, Sept 7 p 21
There's Good News—But Don't Haul Down the Storm Flags Yet, Nov 2 p 61
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25

U.S. DEPARTMENT OF THE NAVY
Can U.S. Shipyards Handle 600-Ship Navy? by P.J. Cathey, July 27 p 48

U.S. DEPARTMENT OF STATE
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by E.W. Bowers, Oct 26 p 30
Technology Exports to USSR Reviewed, Oct 5 p 18

U.S. DEPARTMENT OF TRANSPORTATION
Fruehauf Lightens Load over the Long Road, Nov 2 p 31

U.S. DEPARTMENT OF THE TREASURY
Composite Index Signals Recession, Nov 23 p 148
Now About the Fat, Dumb and Happy . . . . by Gene Beaudet, Oct 26 p 7
Quarterly Forecast—Will Reaganomics Get a Chance to Work? by J.D. Baxter Oct 5 p 33
Were They Wrong for Chiding Business? by GeneBeaudet, Oct 14 p 7

V

VACUUM INDUSTRIES DIV.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61

VACUUM REFINING
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

VACUUM SYSTEMS
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18
World Steelmakers Chase a Higher Quality Steel in a New System, by G.J. McManus, Dec 7 p MP-7

ERNEST O. VAHALA
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

JAMES A. VAIS
Aluminum Exports Will Remain Weak in 1982, Nov 23 p 128

ABELARDO L. VALDEZ
Trade Zone Proposed on U.S.-Mexican Border, Aug 12 p 21

VALVES
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

RICHARD VAN HORNE
For Aluminum, It's a Wide, Wide World, July 24 p 82

J. F. VAN LANDEGHEM
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3
Profits are Down for West Coast Centers, Sept 28 p 119
Service Centers See Smaller Gains in 1982, Dec 28 p 58

K. A. VAN SANT
National Roll to Add Centrifugal Casting, Nov 2 p MP-7

JOHN VANDENKIEBOOM
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

VANDERBILT UNIVERSITY
Why Chromium is the Most Critical of All Metals, by R.R. Irving and K.R. Moldt, Sept 7 p 37

ROBERT L. VAUGHN
Reshaping the Vision—Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53

VEMCO CORP. OF AMERICA
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

GEORGE VENTURA
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

VEREIN DEUTSCHER WERKZEUGMASCHINENFABRIKEN
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

C. WILLIAM VERITY, JR.
HSI: Cautious Forecast for '82, by L.R. Goldwater, Dec 7 p MP-23

VERSATILE MFG. CO.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

JOHN W. VESSEY
XM-1 Can't Shake Its Shortcomings, Dec 7 p 21

WILLIAM R. VICKROY
CAM/CAD Systems Explode in Metalworking, by A.M. Greene, Dec 28 p 48

RICHARD VIRZI
Service Centers See More Action Ahead, Aug 12 p 89

R. M. VISOKEY
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

PAUL A. VOLCKER
Housing Starts Plunge 10.7 Pct., Oct 5 p 132
Talking Business, Oct 14 p 58

VOLKSWAGEN OF AMERICA, INC.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
VW Will Open Second U.S. Plant in 1983, Nov 2 p 21

KURT VOLLERS
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

MICHAEL VOLPE
OSHA to Remain in Place, Auchter Says, July 27 p 19

MARKUS VON BUSSE
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

RICHARD VON HOLLEN
Import Question Heats Up over Heavy Plate Vessels, by Roger Lopata, Sept 16 p 36

VULCAN ENGINEERING, INC.
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

W

WABCO CONSTRUCTION & MINING EQUIPMENT GROUP
Construction Machines Attempt to Ride Out Bumpy Business Cycles, by K.W. Bennett, Sept 7 p 55

WAGES AND PRICES
AMC Asks Workers to Invest Wages, by B.H. Berry, Dec 7 p 17
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51
Reagan Tries to Trim Construction Wages, Sept 7 p 21
Talking Business, Aug 12 p 45
UAW Opens the Door to Renegotiation, Dec 28 p 13
Will Big Labor Trade Security for Dollars in '82 Wage Talks? by G.J. McManus, Oct 26 p 25
Will Big Wage Hikes Rekindle Inflation? July 27 p 41

WILLIAM E. WAGONER
Coatings Industry Gets Off to a Good Finish on Compliance, by J.J. Obrzut, Sept 16 p 51

RAYMOND E. WALK
The Nation's Military Industrial Complex May Not be Complex Enough, by E.W. Bowers, Nov 2 p 49
U.S. Defense Industries are in Trouble, Congress is Told . . . , Oct 14 p 17

KENNETH R. WALKER
Specialty's Tubing on the Rebound, B & W Says, by S.T. Parker, Oct 14 p 25

R. BRUCE WALL
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133

WAYNE W. WALWORTH
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

J. E. WARD
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

DOUGLAS WARNER
Foundries Add Capacity Despite Cuts in Order Book, by K.W. Bennett, Aug 3 p MP-39

JOHN WARNER
Reagan's Minerals Policy Will Remove Impediments, Nov 23 p 20

WARNER & SWASEY INTERNATIONAL CO.
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

WARRANTIES
Warranties Bear Close Scrutiny in Age of Lawsuit, by G.A. Weimer, July 27 p 51

WATER POLLUTION
Air/Water Clean-Up Costs Stunt Steel's Growth, by P.J. Cathey, Sept 7 p MP-55
Steel Gets Break on Clean Air Regulations, Aug 3 p 15

WATERBURY-FARREL DIV.
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95

D. R. WATSON
Dynamic Control Measures the Pulse of Steel in Motion, by G.J. McManus, July 6 p MP-25

JAMES G. WATT
All Quiet on American Congress Front, Oct 14 p 97
Mining Congress: Watt a Difference a Year Makes, by R.J. Regan, Sept 28 p 63
Reagan 'Fully Supports' His Interior Secretary, Aug 24 p 17
Reagan's Minerals Policy Will Remove Impediments, Nov 23 p 20

WAUSAU INSURANCE CO.
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

R. J. WEAN, JR.
AISE Special Report: Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

WEAN-UNITED, INC.
AISE Special Report: Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

WEAR
Implants Impart Wear Resistance to Alloy Surfaces, Sept 16 p 64

L. A. WEAVER
AISE Special Report: Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7

RONALD W. WEAVER
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

EDWARD B. WECK AND CO., INC.
Research Triangle a Far Out Concept that Worked, by Roger Lopata, Nov 23 p 105

MANFRED WECK
Does Adaptive Control Still Promise Improved Productivity? by R.J. Larsen, July 27 p 57

DEAN WEEKE
Expanding Role of Service Centers Seen in Oil Country, by S.T. Parker, Nov 23 p 33

L. G. WEEKS
Armco Hits a Gusher in Oil Country Sales, Nov 2 p 26

MURRAY WEIDENBAUM
Slight GNP Rise is Deceptive, Dec 16 p 92

CASPER WEINBERGER
... But Reagan's B-1 Decision Will Provide Work for Aerospace, Oct 14 p 17
Confusion Surrounds Proposed Defense Cuts, Sept 16 p 13

F. J. WEISS
How Cooling It Makes Electric Furnaces Produce More, by G.J. McManus, Oct 5 p MP-7

J. G. WEISSNER SOHNE WERKZEUGMASCHINENFABRIK
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

WELDED STEEL TUBE INSTITUTE
Service Centers Oppose Trade Zone Proposal, July 6 p 122

WELDING
Are PC Systems the Answer to Factory Automation? by A.M. Greene, Oct 26 p 44
Computers Draw a Bead at Essen Welding Show, by R.R. Irving, Oct 26 p 17
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75
Fiber Optics Helps Control Critical Welding Operations, by R.R. Irving, Oct 14 p 83
Is Japan Also Ahead of Us in Welding? Sept 7 p 134
Is Subarc Welding the Answer to 'Clean' Productivity? by R.R. Irving, Aug 3 p 55
Quarterly Forecast, Oct 5 p 36
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39
Shape Welding: A New Concept in Fabrication, by R.R. Irving, Nov 23 p 111
Why Not Repair Worn Cast Iron Parts? Oct 5 p 89

WELDING RESEARCH COUNCIL
Is Japan Also Ahead of Us in Welding? Sept 7 p 134

WELDON SPECIAL MACHINE DIV.
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

EDWARD WELLS
Computer Fine Tunes Structural Steel Fabrication Line, by J.J. Obrzut, July 6 p 101

WENDT GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

BERNT WESSEL
SMT-Pullmax Opens New Facility in Midwest, Dec 7 p 21

JOHN WEST
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

WESTERN ELECTRIC CO.
Want to Cut Costs? Organize to Do the Job? by J.D. Baxter Aug 24 p 42

WESTERN GEAR CORP.
Bethlehem to Install Billet Inspection System, Aug 3 p MP-3

WESTERN STEEL CO.
Service Centers Oppose Trade Zone Proposal, July 6 p 122

WEST GERMANY
Computers Draw a Bead at Essen Welding Show, by R.R. Irving, Oct 26 p 17
Electronic Controls Take Aim at Welding at the Essen Fair, by R.R. Irving, Nov 11 p 75
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
W. Germany Have Most Foreign Plants in U.S., Nov 2 p 41

WESTINGHOUSE ELECTRIC CORP.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
Mantech: One Way to Improve Productivity on the Plant Floor, by R.R. Irving, Oct 5 p 81
Reshaping the Vision: Managing in the 21st Century, by B.H. LeCerf, Michael Marley, R.R. Irving, J.D. Baxter, Roger Lopata, A.M. Greene and P.J. Cathey, Nov 11 p 53
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87
World Ironmaking: Everyone is Getting into the Act, by G.J. McManus, Aug 3 p MP-5

ROBERT A. WESTMAN
The Inred Process: An Ironmaking Option, by R.R. Irving, July 6 p MP-21

IAN J. WESTWOOD-BOOTH
The Nation's Military Industrial Complex May Not be Complex Enough, by F.W. Bowers, Nov 2 p 49
U.S. Defense Industries are in Trouble, Congress is Told..., Oct 14 p 17

WHARTON ECONOMETRIC FORECASTING ASSOCIATES
Wharton's View: Record Deficits, No Recession, Oct 26 p 23

WHARTON SCHOOL OF BUSINESS
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

ROBERT WHEATON
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

C. M. WHEELER
Fluid Bed's Benefits, Nov 2 p MP-32

WHEELING-PITTSBURGH STEEL CORP.
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, by B.H. LeCerf, Sept 7 p MP-7
After a Long Drought, are Tinplate Producers Ready for a Comeback? by G.J. McManus, July 6 p MP-7
How Contractors Will Meet Steel's Big Equipment Needs, by G.J. McManus, Nov 2 p MP-18
Joint Bargainers Dump Wheeling-Pittsburgh, Sept 7 p 21
Steel Hangs Tough, But Nonferrous Slumps, by G.J. McManus and R.J. Regan, Nov 11 p 41
Steel Industry: Capital Spending Surges, July 27 p 82

WHIRLPOOL CORP.
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

THOMAS WHITAKER
Centers Hurt, Not Helped by TPM, Nov 11 p 88

HAROLD WHITE
Coated Abrasive Belts Get Stronger Backing, by J.J. Obrzut, Aug 3 p 59

RALPH WHITE
Is Detroit Automaking Shrinking or Just Changing Its Shape? by B.H. Berry, July 27 p 29

WHITE FARM EQUIPMENT CO.
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, by K.W. Bennett, July 27 p 71

WHITE-SUNDSTRAND MACHINE TOOL CO.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85

W. A. WHITNEY CO.
First Was CAD, Then CAM-Now, there's CAF, Sept 28 p 25

GARY A. WICKHAM
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53

JOHN WICKS
Summer Heat Didn't Wilt First Half Gains, Sept 16 p 74

D. R. WIESE
Mill Measuring, Nov 2 p MP-40

LAMAR WILKINSON
Summer Softness Seeps into Service Centers, Aug 24 p 131

NORMAN A. WILKINSON
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71

WILKINSON SWORD CO.
Allegheny International Proves Mergers Can Work, by G.J. McManus, Dec 16 p 53

JAMES F. WILL
Kaiser Will Shut Down Steelmaking Operations, Nov 23 p 20

WALTER F. WILLIAMS
Bethlehem Forms New Fastener Unit, Aug 3 p MP-3

WILLIAMS CO.
Despite Slow Economy, Service Centers Continue to Expand, Dec 7 p 93
Service Centers See Slower Fourth Quarter, by K.W. Bennett, Nov 23 p 133

HUGH WILLIAMSON III
Distributors Step Up Modernization Program, Nov 2 p 117

ROBERT E. WILLMARTH
Eastman 'Invests' in Micromelt Casting Co., Oct 5 p MP-5

J. GEORGE WILLS
Can Synthetic Lubes Overcome Friction in the Marketplace? by J.J. Obrzut, Oct 26 p 51

RICHARD WILSON
3 Machine Tool Builders Supplying GM Plant, Sept 7 p 24

T. A. WILSON
Plane Builders Face Near Term Clouds, Sept 7 p 15

W. R. WILSON
Domestic Steelmakers are Ready to Battle Overseas Producers; Lukens Fires First Salvo, Oct 26 p 13
Lukens to Diversify as Part of Long-Range Plan, Dec 7 p 17

HARRY A. WINARSKI
Want to Cut Costs? Organize to Do the Job, by J.D. Baxter Aug 24 p 42

WALTER WINDER
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51

NEIL WINDSOR
Offshore Newfoundland: Another North Sea? July 15 p 20

WIRE ROD MILLS
Steel Summary: Order Lag Worries Mills, Oct 5 p 111

JAMES W. WIRTH
Smart Managers Can Navigate Crosswinds of Currency Change, by P.J. Cathey, Oct 26 p 36

WISCONSIN DIV. OF HEALTH ON-SIGHT
Industry Faces Costly Remedies for Occupational Illness, by R.E. Harvey, Oct 14 p 67

WISCONSIN ELECTRIC CO.
Nuclear Industry Recharged for a New Wave of Growth, by R.E. Harvey, Aug 12 p 47

ROBERT H. WITCHEY
Specialty Alloy Producer Expands Facilities, Sept 7 p MP-1

A. M. WOOD
Huge HSLA Castings Vie for Service in North Sea, by R.R. Irving, Dec 7 p 67

PHILIP W. WOOD
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, by F.W. Bowers, Oct 26 p 30

WORDEN & RISBERG
Turnaround: The Art of Staying Alive, by Roger Lopata, Aug 12 p 52

WORK IN AMERICA INSTITUTE
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

WORLD BANK
Shake Well Before Using, by Gene Beaudet, Nov 2 p 7

WOTAN-WERKE GmbH
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81

EDWARD A. WRIGHT
The Wheels are Turning at Clinch River for the Fast Breeder, by R.R. Irving, July 6 p 87

JOSEPH F. WRIGHT, JR.
All Quiet on American Congress Front, Oct 14 p 97

WILLIAM WRIGLEY
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77

WYMAN-GORDON CO.
Electric Heating Won't Wait for Another Energy Crisis, by J.J. Obrzut, Dec 16 p 61
The Forging Industry Moves to Close the Competition Gap, by R.E. Harvey, Nov 2 p 71
Solving the Engineering Problems of Tomorrow's Aircraft Industry, by C.T. Post, Aug 12 p 60

X

XTEK CORP.
It's No Secret, Retrofitting a Forge Shop Can Save Money, by K.W. Bennett, Sept 7 p 127

Y

YALE UNIVERSITY
Can Indexing Bring Down the Wage Spiral? by G.J. McManus, Sept 7 p 51

YAMAZAKI MACHINERY WORKS LTD.
Flexible Manufacturing: More Companies Make Competition Intense, by R.J. Larsen, Sept 28 p 85
Import Flood Sparks a Wave of R & D at European Show, by R.J. Larsen, Nov 2 p 81
Machine Tool Technology is More than a Chip Off the Old Block, by Iron Age Staff, Nov 23 p 95
Yamazaki Expands Its Kentucky Plant, Dec 28 p 18

YASNAC AMERICA, INC.
Yasnac Looks for More Recognition in America, Oct 26 p 19

OICHI YONABAYASHI
U.S. Amada Opens Plant in California, Nov 23 p 26

ARTHUR YOUNG & CO.
Mining Execs Got Biggest Hikes in '80, Dec 16 p 29
Will Congress Broaden the Tax Umbrella, by R.E. Harvey, July 15 p 58

E. F. YOUNG
Is Clean Air a Case of What You See, What You Get? by G.J. McManus, Oct 5 p MP-13

RICHARD YOUNG
New England Centers Have Inventory Woes, Sept 7 p 173

Z

ROBERT ZAGER
Finding New Ways to Employ Skills of Older Workers, by K.R. Moldt, Aug 3 p 22

T. A. ZALENSKI
J&L's Pollution Control Stressed Getting the Most from Its Facilities, by G.J. McManus, Nov 2 p MP-9

HERBERT ZEIGLER
Profits are Down for West Coast Centers, Sept 28 p 119

ZEIGLER STEEL SERVICE CORP.
Profits are Down for West Coast Centers, Sept 28 p 119

MARVIN ZIMBLE
Copper, Brass Centers Recover in September, Oct 5 p 112

D. C. ZIMMERMAN
Aviation Markets Slow; Steel Shipments Up, Oct 14 p 105
Service Centers See More Action Ahead, Aug 12 p 89

ZINC
Hi-Temp Galvanizing Searches for Galvanizers, by J.J. Obrrut, Oct 14 p 73
Licensing Accord Herald Rebirth of Galvalume, by R.J. Regan, Aug 24 p 53
Quarterly Forecast—Is the Outlook Still a Toss of the Coin? July 6 p 39

ROBERT L. ZWART
Are Machine Tool Builders Cutting It with Industry? by Iron Age Editors, Aug 24 p 77
Composites Force Their Growth Rate by Performance, by C.T. Post, Dec 7 p 57

AUTHORS

BAXTER, J. D.
How Metalworking Can Beat Inflation Using 'Real' Dollars, Nov 2 p 43
Line Managers Move from MIS to DSS for Decision-Making Help, Sept 28 p 71
Reshaping the Vision—Managing in the 21st Century, Nov 11 p 53
Want to Cut Costs? Organize to Do the Job, Aug 24 p 42
Will Reagonomics Get a Chance to Go to Work? Oct 5 p 33

BEAUDET, GENE
Are They Just Fed Up with the Fed? Sept 28 p 7
Are You Ready to Give Up? Sept 16 p 7
Before Things Rise, Something Must Fall, Sept 7 p 7
Business in 1982: Who's Got the Answers? Dec 28 p 7
But Are We Building Anything? Aug 3 p 7
Flash! There's More to the News than Bad News! Dec 7 p 7
It Now Depends On Us, Aug 24 p 7
Must Reading for the Powers That Be, Nov 2 p 7
Now About the Fat, Dumb and Happy. . . Oct 26 p 7
Shake Well Before Using, Nov 2 p 7
Some Cliches and Questions about Trade, Dec 7 p 7
A Tough Row to Hoe, July 15 p 7
Warding Off the Prophets of Gloom, Dec 16 p 7
Well, It *Is* Hard to Believe, Nov 11 p 7
Were They Wrong for Chiding Business, Oct 14 p 7
What Can You Say About Steel's New Spending? Sept 7 p 7
What So Proudly We Hailed, July 6 p 7
Whatever Happened to Pent-Up Demand? Nov 23 p 7
Why this Change of Heart? Aug 12 p 7
Will Steel Spending Plans Stay on Track? Oct 5 p 7
Would You Believe a Long, Hot Winter? July 27 p 7

BENNETT, K. W.
Centers Hesitate to Invest in Equipment, Oct 26 p 63
Construction Machines Attempt to Ride Out Bumpy Business Cycles, Sept 7 p 55
Copper and Brass Distributors Hit with Seasonal Slump, July 27 p 89
Farm Equipment Makers Seek Faster Ways to Harvest Their Plants, July 27 p 81
Foundries Add Capacity Despite Cuts in Order Book, Aug 3 p MP-39
Inland Steel's Keeping Pace with Auto Industry Needs, Oct 5 p MP-29
It's No Secret, Retrofitting a Forge Shop Can Save Money, Sept 7 p 127
Planning for Growth: One Company's Approach, Oct 14 p SP-6
Service Center Prospects Continue to Bloom, Aug 3 p 73
Troubles Still Plague Construction Equipment, Dec 16 p 37
U.S. Steel Revamps No. 13 and Pushes Output Higher, Oct 5 p MP-21

BERRY, B. H.
AMC Turns to France for Parts for Its Front-Wheel-Drive Renaults, Aug 3 p 19
Borg-Warner's Five-Speed Transmission Hot Item, July 27 p 13
CAD/CAM Could Hold the Key to Cutting Detroit's Lead Time, Nov 11 p 34
Detroit's Auto Industry Wrestles with Machine Downtime, Sept 16 p 30
Detroit's Productivity Can't Cross Lines of Demarcation, Sept 28 p 41
Fall Usually Raises Car Sales, But Not this Year, Oct 26 p 13
Is Auto Industry's Front-Wheel-Drive Strategy Backfiring? Dec 7 p 35
Is Detroit Automaking Shrinking or Just Changing Its Shape? July 27 p 29
Preventing Defects through Statistical Quality Control, Oct 14 p 59

BOWERS, E. W.
Abuse Threatens Status of IRB Tax Exempts, Oct 14 p 55
Canada's 'Me-First' Policy Threatens Relations with U.S. Corporations, Oct 26 p 30
Clean Air Reform Sinks into Congressional Mud, Dec 7 p 41
Gov't. Fears Trade War if TPM is Lost, Dec 7 p 19
Mr. Stanley Goes to Washington and Talks to Congress, July 15 p 43
The Nation's Military Industrial Complex May Not be Complex Enough, Nov 2 p 49
Reagan Administration 'White Paper' Favors Free Trade Policy, July 27 p 19
Reagan Will 'Guide' Clean Air Act Revamp, Aug 24 p 17
Special Analysis—Is U.S. Trade Policy Free, Fair or Open? Aug 24 p 34
Steel Returns Economist's Blast with One of Its Own, Aug 3 p 15
Thorne Auchter Ready to Give OSHA a New Look, Nov 23 p 43
The Urge to Merge: The Climate Seems to be Ripe, Sept 7 p 30
What Can Small Business Expect from Washington? Oct 14 p SP-1

CATHEY, P. J.
Air/Water Clean-Up Costs Stunt Steel's Growth, Sept 7 p MP-55
Can U.S. Shipyards Handle 600-Ship Navy? July 27 p 48
Cutting Travel and Entertainment Expense Down to Size, Nov 23 p 65
Hedge Overseas Bets with Risk Insurance, Aug 12 p 33
Reshaping the Vision—Managing in the 21st Century, Nov 11 p 53
Smart Managers Can Navigate Crosswinds of Currency Change, Oct 26 p 36
Steel at Crossroads—But in Better Shape, by Aug 3 p 41
Technology's Input is Vital to Sound Business Planning, Sept 16 p 43

GOLDWATER, L. R.
HSI: Cautious Forecast for '82, Dec 7 p MP-23

GREENE, A. M.
Are PC Systems the Answer to Factory Automation? Oct 26 p 44
Board Level Computers: Building Blocks for Industrial Control, Aug 24 p 67
CAM/CAD Systems Explode in Metalworking, Dec 28 p 48
GE's Grierson Corrals High Technology, Dec 16 p 56
Lockheed-Georgia Advances Technology, Sept 7 p 114
Managing Maintenance Saves Costly Repairs, July 6 p 79
Reshaping the Vision—Managing in the 21st Century, Nov 11 p 53
Shop Floor Data Closes Loop in Factory Management, Sept 28 p 75
Software: Making It Less Costly and More Available, Nov 23 p 76

HARVEY, R. E.
The Forging Industry Moves to Close the Competition Gap, Nov 2 p 71
Hurco Enters the Big Time, Oct 14 p SP-14
Industry Faces Costly Remedies for Occupational Illness, Oct 14 p 67
North American Sets Foot in Metalworking Industry, Aug 12 p 75
Nuclear Industry Recharged for a New Wave of Growth, Aug 12 p 47
Will Congress Bronden the Tax Umbrella, July 15 p 58
Will Tax Credits Spark Industry to Pick Up the Tab for R&D? Nov 23 p 51

IRON AGE STAFF
Are Machine Tool Builders Cutting It with Industry? Aug 24 p 77
Machine Tool Technology is More than a Chip Off the Old Block, Nov 23 p 95

IRVING, R. R.
Computers Draw a Bead at Essen Welding Show, Oct 26 p 17
The Dynamic World of Jet Engine Materials, Sept 28 p 109
Electronic Controls Take Aim at Welding at the Essen Fair, Nov 11 p 75
Fiber Optics Helps Control Critical Welding Operations, Oct 14 p 83
How Can the 'Tech Mod' Improve Productivity? Aug 12 p 67
Huge HSLA Castings Vie for Service in North Sea, Dec 7 p 67
The Inred Process: An Ironmaking Option, July 6 p MP-21
Is Surbarc Welding the Answer to 'Clean' Productivity? Aug 3 p 55
Mantech: One Way to Improve Productivity on the Plant Floor, Oct 5 p MP-81
Reshaping the Vision—Managing in the 21st Century, Nov 11 p 53
Shape Welding: A New Concept in Fabrication, Nov 23 p 111
What One Expert Says About Our Product Quality, July 15 p 49
The Wheels are Turning at Clinch River for the Fast Breeder, July 6 p 87
Why Chromium is the Most Critical of All Metals, Sept 7 p 37

LARSEN, R. J.
Caterpillar Takes the Lead in the Use of Flexible Manufacturing, Sept 28 p 96
Does Adaptive Control Still Promise Improved Productivity? July 27 p 57
Flexible Manufacturing: More Companies Make Competition Intense, Sept 28 p 85
Flexible Manufacturing: The Technology Comes of Age, Sept 7 p 82
Import Flood Sparks a Wave of R & D at European Show, Nov 2 p 81
Labor Problems Plague Brown & Sharpe Plants, Nov 2 p 25
Researchers Spread News of Flexible Manufacturing, Sept 7 p 99

LE CERF, B. H
AISE Special Report—Steel Turns Loose Capital Spending Projects Worth $5 Billion, Sept 7 p MP-7
Reshaping the Vision—Managing in the 21st Century, Nov 11 p 53
Trinidad & Tobago Launches Steel Independence, Aug 3 p MP-31

LOPATA, ROGER
As Barter Business Booms, Some Firms Miss the Boat, Oct 14 p 45
Business Continues to Benefit from Winds of Change in Washington, July 27 p 13
Failure Can be Hazardous to Health, Aug 24 p 59
Import Question Heats Up over Heavy Plate Vessels, Sept 16 p 36
Piersol Pine Cuts Corners without Cutting Quality, Oct 14 p SP-11
Research Triangle a Far Out Concept that Worked, Nov 23 p 105
Reshaping the Vision—Managing in the 21st Century, Nov 11 p 53
The Tax Package: What It Does, What It Doesn't, Sept 7 p 45
Turnaround: The Art of Staying Alive, Aug 12 p 52

MCMANUS, G. J.
AISE Notes Emphasis of Foreign R & D in U.S. Industry, Oct 5 p MP-33
AISE Special Report Steel Turns Loose Capital Spending Projects Worth $5 Billion, Sept 7 p MP-7
After a Long Drought, Are Tinplate Producers Ready for a Comeback? July 6 p MP-7
Alcan Sues California on Tax Issue, Aug 3 p 71
Allegheny International Proves Mergers Can Work, Dec 16 p 53
American Steel Makers Prepare Dumping Suits, Nov 2 p 53
Armco & Nippon Take Technical Exchange One Step Further, July 6 p MP-14
Can Indexing Bring Down the Wage Spiral? Sept 7 p 51
Cartech Continues to Pour Its Profits into Expansion, Sept 7 p MP-37
Dynamic Control Measures the Pulse of Steel in Motion, July 6 p MP-25
How Contractors Will Meet Steel's Big Equipment Needs, Nov 2 p MP-18
How Cooling It Makes Electric Furnaces Produce More, Oct 5 p MP-7
Is Clean Air a Case of What You See, What You Get? Oct 5 p MP-13
J&L's Pollution Control Stresses Getting the Most from Its Facilities, Nov 2 p MP-9
Specialty Steelmakers Seek Import Curbs, Dec 16 p 12
Steel Hangs Tough, But Nonferrous Slumps, Nov 11 p 41
Steel Quality Starts with Recruitment of Talented Engineers, Sept 7 p MP-33
Steel Summary: Import Issues Heat Up; Europeans Want Out on TPM, Aug 3 p 70
Steel Summary: Summer Slump Bottoms Out, Aug 12 p 84
Steel Turns a Corner; Nonferrous Drops Back, Aug 12 p 41
Steelmakers Question TPM Effectiveness, July 15 p 35
Team Concept Stressed in Productivity Confab, Dec 7 p 45
U.S. Steel Reaches Out for Marathon Oil in History-Making Merger, Dec 16 p 45
U.S. Steel Ready to Hook Up with Marathon Oil Co., Dec 7 p 14
Who's on First in Seamless Technology? Sept 7 p MP-42
Will Big Labor Trade Security for Dollars in '82 Wage Talks? Oct 26 p 25
World Ironmaking: Everyone is Getting into the Act, Aug 3 p MP-5
World Steelmakers Chase a Higher Quality Steel in a New System, Dec 7 p MP-7

MARLEY, MICHAEL
In Ireland, Industry is in Clover, Sept 28 p 56
Management in America—Reshaping the Vision—Rebuilding Competitive Strength, Aug 3 p 43
Reshaping the Vision-Managing in the 21st Century, Nov 11 p 53

MOLDT, K. R.
Finding New Ways to Employ Skills of Older Workers, Aug 3 p 22
Tongue-Tied U.S. Execs Inflict Toll on Trade, July 6 p 75
Why Chromium is the Most Critical of All Metals, Sept 7 p 37

OBRZUT, J. J.
Can Synthetic Lubes Overcome Friction in the Marketplace? Oct 26 p 51
Coated Abrasive Belts Get Stronger Backing, Aug 3 p 59
Coatings Industry Gets Off to a Good Finish on Compliance, Sept 16 p 51
Computer Fine Tunes Structural Steel Fabrication Line, July 6 p 101
Electric Heating Won't Wait for Another Energy Crisis, Dec 16 p 61
Hi-Temp Galvanizing Searches for Galvanizers, Oct 14 p 73

PARKER, S. T.
The Art of Negotiating Goes Beyond Bargaining Tables, Oct 26 p 39
Expanding Role of Service Centers Seen in Oil Country, Nov 23 p 33
Hughes Tool Strikes a Growth Gusher in the Oil Country, Sept 7 p 65
LTV-Grumman Merger Fails to Get Off the Ground, Dec 16 p 47
Look Who's Being Cut Out of Top Jobs in the U.S., Aug 3 p 35
Offshore Rig Builders Moving Full Steam Ahead, Sept 16 p 40

POST, C. T.
Composites Force Their Growth Rate by Performance, Dec 7 p 57
Fluor Not Tying Its Future Strategy to One Industry, July 15 p 28
How One Company Created Markets for Its Technology, Sept 7 p 131
If Managers Don't Mix, Then Effective Decisions Don't Get Made, Dec 7 p 49
Lear Siegler Prunes Its Diverse Garden and Comes Up Green, Nov 2 p 63
Solving the Engineering Problems of Tomorrow's Aircraft Industry, Aug 12 p 60
Will Committees Make OSHA Enforcement a White Hat Job? Oct 5 p 73

REGAN, R. J.
Aluminum Cuts Output as Bookings Drop, Aug 12 p 84
Aluminum Output Sets New Six-Month Record, Aug 3 p 70
Auto, Housing Slumps Hold Down Copper Sales, Aug 24 p 128
Composite Makers Still Wait for a Breakthrough, Aug 12 p 76
Is a Sluggish Aluminum Industry in Store for the Same in '82? Oct 14 p 40
Licensing Accord Herald Rebirth of Galvalume, Aug 24 p 53
Metals Industries Waiting for Reagan's Minerals Policy, Dec 16 p 31
Mining Congress 1981: Watt a Difference a Year Makes, Sept 28 p 63
NARI Wants Railroads to End Shell Game, Aug 3 p 70
Oil Glut, High Interest Deal Solar a Double Whammy, Nov 11 p 49
Steel Hangs Tough, But Nonferrous Slumps, Nov 11 p 41
Steel Turns a Corner; Nonferrous Drops Back, Aug 12 p 41
Tug-of-War is On Among Aluminum Suppliers, July 15 p 41
World Aluminum Market Has Indigestion, Aug 24 p 125

WEIMER, G. A.
Copperweld Speaks and Listens to Its Workers, Sept 7 p MP-46
Davy McKee Still Believes in the Metals Industry, Nov 2 p MP-20
New Designs & Materials May Aid Power Transmission Beat the High Cost of Energy, July 15 p 52
Softening the Blow of a Plant Closing, Sept 7 p 73
The Space Shuttle Goes Aloft for Its Second Test Flight, Nov 23 p 60
Steel Summary: Oil Country Sales Turn Mills On, Aug 24 p 125
Two Managers Who Aren't Running One-Man Shows, Nov 23 p 73
Warranties Bear Close Scrutiny in Age of Lawsuit, July 27 p 51